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School Health Service in England and Wales*

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WHILE the introduction of compulsory elementary education in England dates from the passing of the Elementary Education Act of 1870, many years elapsed before the introduction of any systematic provision for the physical needs of the children or for the education of those children who, on account of mental or physical defects, were unable to take full advantage of the normal methods of education. The blind and deaf children were the first class to be the subject of special legislative action. Schools for these classes of children had been established by voluntary effort as early as the end of the 18th century, but it was not until 1895 that the State imposed on education authorities a duty of making provision for such children, either by establishing schools of their own or by sending them to certified schools established by the voluntary bodies. A similar power was given as regards mentally and physically defective and epileptic children by the Elementary Education (Defective and Epileptic Children) Act of 1899, and this power was converted into a duty by the Acts of 1914 and 1918.

Toward the end of the 19th century it became clear that, quite apart from the need for the provision of special schools for children who were unable to profit by the education in ordinary elementary schools, a large proportion of the children in these schools were prevented by some physical weakness or defect from receiving the full benefit from the education provided. About this time, school medical officers were appointed in certain areas, notably London and Bradford, and the results of the medical inspection of school children undertaken by them helped to arouse a widespread interest, not only in the question of school hygiene, but in the wider question of the national health and the standard of the national physique. This wider question formed the subject of a report issued in 1904 by the Interdepartmental Committee on Physical Deterioration, which recommended the establishment of a universal system of medical inspection for the detection of ailing and malnourished children and provision of arrangements for the feeding of the children where

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necessary. The result of this and other reports paved the way for legislation on the subject, and in 1906 the Education (Provision of Meals) Act gave power to local education authorities to provide for the systematic medical inspection of all children attending public elementary schools, and empowered them, with the sanction of the Board of Education (now Ministry of Education), to make arrangements for attending to the health and physical condition of such children. In order to facilitate the necessary organization, central and local, the Board of Education established a Medical Department.

An extract from a circular issued by the Board at that time sets out the objects of the new service:

> The aim of the Act is practical and it is important that local education authorities should keep in view the desirability of ultimately formulating schemes for the amelioration of the evils revealed by medical inspection, including, in centres where it appears desirable, the establishment of school surgeries or clinics, such as exist in some cities of Europe, for further medical examination or the specialized treatment of ringworm, dental caries, or diseases of the eye, the ear, or the skin. It is clear that to point out the presence of uncleanliness, defect, or disease does not absolve an authority from the consequent duty of so applying its statutory powers as to secure their amelioration and to prevent, as far as possible, their future recurrence of development. The authorities should take measures without delay for dealing, through such agencies as are conveniently available, with what are commonly, though in a sense erroneously, regarded as minor ailments. To such ailments measures of amelioration should immediately be applied.

The earlier years of the school medical service were devoted mainly to securing the establishment of medical inspection. This revealed an enormous amount of disability due to defective eyesight, decayed teeth, enlarged tonsils and adenoids, uncleanliness and a number of so-called "minor ailments." Although the tendency in the early stages was to make full use of the voluntary hospitals, care organizations, and private practitioners for treatment, it became increasingly apparent that, on account of the poverty of the parents or lack of facilities, many children were unable to get the attention they required. The education authorities therefore found it necessary to make arrangements for providing certain forms of treatment, the parents being required to contribute to the cost of that treatment according to their means.

A stimulus to the expansion of these services was given in 1913, when Exchequer grants amounting to approximately 50 per cent of their cost were made to local education authorities. Since then progress has been steady and consistent. The Education Act of 1918 made, what had been hitherto a power, a duty to provide certain forms of treatment, e.g., for minor ailments, defective vision, dental disease, enlarged tonsils and adenoids, but most authorities in course of time enlarged the scope of their services far beyond the bounds of that laid down by statute. The Education Act of 1944 went a stage further in putting a duty on local education authorities to provide or otherwise secure all forms of medical treatment for children in schools maintained by them, with the exception of treatment in the pupil's home and certain forms provided by other public medical services, e.g., infectious disease, tuberculosis. Such treatment must be given without cost to the parents. The medical sections of the Education Act, 1944, anticipate to a certain extent the provisions which will be made under the National Health Service Bill which is shortly to go before Parliament.

ADMINISTRATION

It should be emphasized that the school health service does not work in isolation but is integrated with the other public medical services of the area. Such are the maternity and child wel-

fare service (with responsibility for the health of children under school age), the service for the control and treatment of infectious disease, the hospital service, the tuberculosis service, and the general public health service. The school health service is controlled centrally by the Ministry of Education, locally by the local education authorities; the other services mentioned are controlled centrally by the Ministry of Health, locally by the public health authorities.

Central administration

Under the Act which established the Ministry of Health in 1919, the powers and duties of the Board of Education with respect to medical inspection and treatment of children and young persons were transferred to the new Minister of Health. This was done in order to secure proper integration of the various health services. It was provided, however, that the Minister of Health could arrange for delegation of these functions to the Board of Education and this was in fact done.

The Chief Medical Officer of the Ministry of Health is also Chief Medical Officer of the Ministry of Education, and in this way the medical work of the two central departments is coördinated. Under the Chief Medical Officer are a Senior Medical Officer, a Deputy Senior Medical Officer, and a number of medical officers whose services are confined to the Ministry of Education. Their duties are mainly advisory. They visit from time to time the areas of local education authorities, review the adequacy of the school health service arrangements (including the special schools), and report their findings to the Ministry which, in the light of information received, may make recommendations for the improvement or expansion of the education authorities' services. Since the cost of these services is borne partly by the Ministry, i.e., out of Exchequer grants, and partly by the local authority, i.e., out of local rates, the local education authorities do not have to shoulder the whole financial burden of putting the Ministry's recommendations into effect.

Local administration

The local administration of the education services, including the school health service, is carried out by the education authorities of 63 counties (e.g., Middlesex, Lancashire) and 83 county boroughs (e.g., Liverpool, Manchester). Each local education authority is required to appoint a school medical officer. In all areas, with the exception of three county boroughs, the school medical officer is also medical officer of health. The policy of making joint appointments of this kind has the full support of both the Ministries of Health and Education, in order to bring about the integration of the school health service with the other public medical services administered through the medical officer of health by the public health authorities of the areas.

On the staff of the school medical officer are a deputy, or senior school medical officer, and a number of assistant school medical officers. Though the deputy or senior school medical officer may devote his whole time to the school health service, the assistants for the most part work under both the education and public health authorities. The specialists' staff, which include ophthalmic surgeons, aurists, orthopedic surgeons, and others, are usually engaged in a part-time sessional basis. They frequently have duties also under the public health authorities, e.g., for the treatment of children under school age.

The dental services are staffed by a senior dentist, who is responsible to the school medical officer for the organization, development and technical

efficiency of the school dental service, and a number of assistant dentists. The nursing staff consists of a number of nurses under a senior or nursing superintendent. These, for the most part, act as school nurses under the education authority and as health visitors under the public health authority, and a Regulation recently made under the Education Act, 1944, is to the effect that every nurse to be appointed by the education authority for the purpose of the school health service shall possess the qualification prescribed for a health visitor (public health nurse in America). The coördination of the activities of these various members of the staff, and the general administration of the school health service, is the responsibility of the school medical officer.

INSPECTION

The basis of school medical work is founded on a system of medical examination of children of specified age groups. These were till recently at the age of entry to school, usually 5, at 8+, and at 12. Regulations made under the Education Act, 1944, have altered the previous requirements, and children must now be inspected as soon as possible after entry to school, in the last year of attendance at a primary school, i.e., at 10+, and during the last year of attendance at a secondary school, i.e., for the majority at 13+ (until the school leaving age is raised to 15), and on such other occasions as the Minister may from time to time direct or the authority, with the approval of the Minister, may determine. Under these new regulations the system of inspection is made more elastic and allows authorities to experiment and vary their arrangements to meet their local circumstances, while they maintain certain minimum requirements. The inspection, which takes place in the school, is conducted by a school medical officer and includes an examination of the respiratory, circulatory, nervous, digestive, and muscular systems, and the special senses. In addition to these so-called "routine inspections," the medical officers carry out a large number of examinations of children specially referred to them by teachers, parents, or school nurses, and all reëxaminations of children who, at a previous inspection, were found to be suffering from illness or defect. The number of routine and special examinations per annum in pre-war years amounted to approximately 60 per cent of children in average attendance at the elementary schools.

The school nursing service

The school nurse plays an essential part in the school health service. She acts as a liaison officer between the medical officer, the school, and the home. She visits the homes of children found to be in need of treatment, advises parents on the need for and how to obtain medical attention, and continues to keep in touch with the family until the condition is remedied. An important though thankless duty is that of examining children for verminous conditions and by advice to the parents or by more drastic measures bringing about a reform. The employment of women in war factories has inevitably caused a relaxation in parental care. This has led to substantial increase in verminous conditions and parasitic diseases during the war years. They are now being got under control, largely due to the energy of the school nurses who were substantially helped during wartime by organizations such as first-aid posts and decontamination stations. Apart from these setbacks due entirely to war conditions we can, taking a long view, see an enormous improvement over the past twenty-five years in the cleanliness of the clothes, bodies, and heads of children in our state schools.

TREATMENT

While all pupils must be submitted for inspection, the parent is free to decline the offer of treatment. The nucleus of the treatment service is the school clinic, which is often in the same building as other public medical services, e.g., the maternity and child welfare service. Arrangements for the treatment of the following conditions are made by all authorities:

Minor ailments, including diseases of the skin
Diseases of the eyes and defective vision
Diseases of the ear, nose, and throat, and defective hearing
Dental diseases

Treatment of diseases and defects of the special sense organs is, as far as is practicable, undertaken by specialists.

Dental treatment is carried out by dentists. A comprehensive school dental service provides for the annual examination of every child and treatment when required. Few authorities were able to achieve this even before the war, but the school dental service was formerly one of the most actively expanding branches of school medicine, and there is no doubt that expansion will now be resumed.

Authorities have been given considerable latitude in the past in developing their schemes for medical treatment over and above the statutory requirements. A few may be mentioned.

Orthopedic work

One branch of the school medical service which owes its development largely to medical progress during the 1914–1918 war is orthopedic treatment. Arrangements for orthopedic treatment are made by the majority of local education authorities. These are based on in-patient treatment at orthopedic hospital schools where, as treatment is often very prolonged, arrangements for the education of children are made. In-patient treatment is followed up by outpatient treatment at orthopedic centers which are staffed by visiting orthopedic surgeons and trained orthopedic nurses. Here, as well as the more serious cases of crippling, are treated minor conditions of deformity and postural defects.

Child guidance

Although many authorities have had to cut down their school medical work during the war years, certain branches of the work have undergone considerable expansion. A notable example of this is child guidance. The war gave rise to numerous circumstances likely to lead to psychological disturbances in children. Evacuation, with the placement of the child in an unfamiliar environment, the break-up of family life and with it the relaxation of parental control produced a sense of insecurity in children which manifested itself in symptoms of maladjustment. The problems of billeting children who were under psychological strain led many of the receiving authorities to establish a child guidance service, primarily for evacuees, but also available for local children. Many such services established to meet war emergencies will remain permanently. In the cities much attention was paid to the emotional disturbances in children caused by wartime conditions, particularly by the "blitz." It is satisfactory to record that the results of inquiries on the effect of air raids on children are reassuring, and that, taking the child population as a whole, it has stood up to aerial bombbardment with its accompanying terrors with the same courage and fortitude displayed by the civilian population generally.

Treatment of speech defects

This is another branch of the service which has expanded during recent years. Children attend special clinics two or three times a week to receive

treatment by a qualified speech therapist who works in close coöperation with the medical staff.

Miscellaneous clinics

These include clinics for rheumatic children, for children with defects of nutrition, for children needing orthoptic treatment for squint, and a recent provision which it is hoped will be widely developed in the future is the establishment of clinics under consultant pediatricians.

Such are the main forms of treatment provided under the school health service. The scope and comprehensiveness of the arrangements necessarily vary from one area to another. Under the Education Act, 1944, education authorities must provide or otherwise secure fully comprehensive arrangements for treatment, though the expansion of the treatment services in the future must go hand in hand with the development of the new National Health Service.

SPECIAL EDUCATIONAL TREATMENT FOR PHYSICALLY OR MENTALLY HANDICAPPED PUPILS

There are a considerable number of children of school age who suffer from physical or mental defects which render them unable to take advantage of the ordinary means of education, and make it necessary that special educational facilities should be provided for them. Such children fall into the categories of the blind, the deaf, the mentally defective (now termed "educationally subnormal"), the physically defective, and the epileptic. It is the duty of the local education authorities to ascertain the children in their areas who belong to these categories and to make suitable provision for their education.

The beginnings of the provision of special educational facilities for blind, deaf, defective, and epileptic children were due to voluntary efforts and, while nearly all the existing day special schools are provided by local education authorities, more than half of the residential special schools are provided by voluntary bodies. Thus the voluntary schools still fill an important place in the special school system and they receive financial support by direct grants from the Ministry and by contributions made by the local education authorities and other public authorities who send children there.

The Education Act, 1944, increases the number of categories of handicapped children, but at the same time enables the methods of educating them to be made more elastic. Prior to the new Act, once a child was "ascertained" as being handicapped, from a strictly legal point of view he could be educated only in a special class or school. In recent years, with the greater elasticity in the organization and curriculum of the ordinary schools, it has been possible to educate within these schools many children suffering from defects which formerly could only be dealt with in the so-called special schools. Under the 1944 Act children, who though handicapped, can with suitable adjustments in the ordinary school curriculum receive benefit from the education given there and compete successfully with their fellow pupils, may be educated in the ordinary school.

It is recognized that children with defects of certain types and certain degrees of severity must be educated in special schools. Such are blind, deaf, severely crippled, or epileptic children, but others such as partially-sighted, partially-deaf, maladjusted, all of which are new additions to the categories of handicapped children under the Education Act, 1944, and educationally subnormal need not necessarily be sent to a special school. Some of these can receive education in the ordinary school if suitable arrangements are made. Others, however, because of the severity of the handicap,

or of environmental circumstances, must be sent to special schools.

Broadly speaking, the present provision of special schools for blind and deaf is adequate. A certain number of the severe types of partially-sighted and partially-deaf are educated in blind or deaf schools respectively, but it is an arrangement which educationalists in this country do not favor. It is hoped that, with a national reorganization plan for schools for the blind and deaf which is now being undertaken, it will be possible to make arrangements by which those partially-sighted and partially-deaf children who need a special education should receive it in schools dealing exclusively with these types of defect.

Provision for other types of handicapped pupils is insufficient. For example, the special school accommodation for educationally subnormal children is far below what is required. It is estimated that in England and Wales as a whole some 23,000 children who are educationally subnormal require residential care. At present the accommodation available is approximately 3,000 places. It is satisfactory to note, however, that authorities, in spite of present-day difficulties with regard to acquisition of premises and obtaining building labor for non-priority work, are taking active steps in providing special accommodation for this type of child. Before the war the expansion in special school provision was mainly for delicate children. These are sent to open-air schools; either day or residential, which provide, in addition to open-air life, an adapted curriculum and facilities for meals, rest, and bathing.

It has been recognized in recent years that education is an important adjunct to the medical treatment of a child in hospital. Educational facilities for children under long-term treatment in orthopedic hospitals, sanatoria for pulmonary tuberculosis, or institutions for the treatment of rheumatism or heart disease, have been provided for many years, but the tendency recently has been to introduce such arrangements into ordinary children's hospitals or the children's departments of general hospitals. The Emergency Medical Service, which during the war administered the general hospital service of the country, appointed teachers in all their hospitals which had more than twenty children staying for a period of more than two or three months.

HEALTH EDUCATION

Ever since the inauguration of the school medical service the Ministry have emphasized the importance of the teaching of hygiene in all types of schools. The teaching of hygiene is a compulsory subject for all students in training colleges for teachers. It is held, however, that this aspect of the health services of the local education authority is educational rather than medical, and the instructions should, as a rule, be given by the school teachers though close coöperation with the school medical officers. In order to give the subject of hygiene a fairly well defined context and to bring it within the compass of school teaching, the Ministry have issued a *Handbook of Suggestions on Health Education*. This handbook points out that hygiene could be taught by three methods—(a) by habit training, (b) by learning the truths of biology, chemistry, and physics, and (c) by understanding the principles and practice of good living itself, and gives detailed suggestions for the application of these methods to children of various ages. While the provision made for the teaching of this subject is still far from complete, there is evidence of a growing recognition of its importance, and of an appreciation of the burden of disease and incapacity in adult life which may result from the failure to acquire and practise healthy habits of living in childhood.

APPENDIX

Statistical Tables

(1) *No. of children on registers,* October, 1945

Primary and Secondary Schools 5,022,068

(2) *Staff of School Health Service*

(a) School Medical Officers and Assistant School Medical Officers, 1942 — the equivalent of 724 whole-time officers

(b) No. of Specialists (nearly all on a part-time basis), 1938

(i) Ophthalmic surgeons	418
(ii) Aural surgeons	236
(iii) Orthopedic surgeons	147

(3) *Number of Medical Inspections,* 1944

(a) Routine	1,305,608
(b) Special and re-inspections	2,766,850

(4) *Treatment,* 1944

(a) No. of defects treated

(i) Minor ailments	1,281,898
(ii) Defective vision and squint	245,402
(iii) Nose and throat	90,104

(b) Dental treatment

(i) No. of children treated	1,246,864
(ii) Percentage of children inspected who required treatment	58.6
(iii) Percentage of children requiring treatment who received it	66.5

(5) *Nursing Service,* 1944

(i) No. of examinations for verminous conditions	14,182,587
(ii) No. of children found unclean	502,348

(6) *Finance; expenditure by Local Education Authorities,* 1941–1942

(i) Medical inspection and treatment	£2,679,023
(ii) Special schools	£1,957,923

Penicillin and Streptomycin*

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THE practice of public health has undergone more radical changes in subject matter and scope in the last decade than perhaps in any similar period in the history of this country. Isolation, quarantine, sanitation, immunology, and epidemiology are still important but the increasing involvement of chemotherapy, antibiotics, engineering, and chemistry is having an influence on the panorama of public health, the import of which is even now not fully evident.

The pharmaceutical industry has joined the public health service. Its cards of admission have been the arsenicals, antimony compounds, atabrine, the sulfa drugs, penicillin, DDT, workers' health and insurance programs, and now streptomycin. It has other cards up its sleeve. The public health services will realize their fullest effectiveness only when industry furnishes more weapons with which to fight.

The development of penicillin is a remarkable chapter in the history of science. It is marred only by the lag of 12 years between the discovery of its effect and its availability as a drug while untold thousands perished for want of it. This reveals a serious shortcoming in the mobilization and development of medical science. We must see to it that we never again wait so long for laboratory discoveries to bear fruit.

Late in 1942, when commercial production of penicillin got under way, a few units were turned out, insufficient for even experimental purposes. In 1945 production reached the level of almost 700 billion Oxford units per month. A total of 6,912 billion units was produced in 1945, enough to treat more than 7 million cases, assuming an average of slightly less than a million units per case, and yet the product is so concentrated and so highly refined that the amount of pure penicillin produced amounts to only 9 pounds a day. J. A. Krug, recently Chairman of the War Production Board, characterized the production of penicillin and DDT as "perhaps the most amazing production stories of the war."

Production of penicillin is steadily increasing and we may expect a successively greater output each month. The amount now available is just about adequate to meet American requirements and most of the world's needs. Recent reports from parts of the United States indicated an unusually high incidence of respiratory infections. Many of these cases appeared to resemble a mild form of influenza. It recently seemed entirely possible that we might have a severe influenza epidemic in the making, with its aftermath of pneumonia and other respiratory infections. If this should occur, and we earnestly hope it will not, the amount of injectable penicillin available may not be sufficient to meet all requirements. Manufacturers and public health authorities are watching the situation closely. If anything serious develops it may be necessary to curtail

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production of various pharmaceutical preparations of penicillin and concentrate on the more economical and effective parenteral forms of the drug.

It is easy to assume that war was responsible for the remarkable acceleration of production of penicillin. This is probably true to some extent. But it is not altogether clear that the help given by the government did more than serve to overcome the handicaps, shortages, and restrictions of a wartime economy. Prior to the war American production programs for prontosil, sulfanilamide, sulfathiazole, and sulfadiazine were equally prompt in meeting the health needs of the world. Great Britain, which was equally aware of the importance of penicillin, is only now producing substantial amounts of penicillin with the help of American engineers and American designs for plant installations. Perhaps it was largely the fact that we were in the war to a less extent than England that we were able to do so well. In other words, it seems to me that we should be cautious in jumping to the conclusion that only under the stimulus of war can we put forth our best efforts. The pharmaceutical industry is now engaged in a large program of production of streptomycin. While it is confronted with unrelieved shortages and delays carried over from the war, we shall have another opportunity of seeing whether the dragon of war or the dove of peace is the more potent stimulus to scientific progress.

Organic chemists throughout the country have worked energetically for almost three years on a collaborative program under the auspices of the National Research Council in the hope of synthesizing penicillin. The goal is still a long way off, and may never be reached. In the meantime, the mold *Penicillium notatum* has been taught to do this complicated job of synthetic chemistry for us so cheaply that organic synthesis can probably never hope to compete with it. This is truly an example of cheap labor, and one which leaves man's efforts in the rôle of a hoped for academic accomplishment.

Medical men and even the public are familiar with the nature of the infections for which penicillin is useful. An enumeration of them would therefore be superfluous. However, there are a number of recent developments that may be worth mentioning. The early hope that penicillin would destroy the spirochete of syphilis and eliminate the infection in all cases has not been realized. While it has proved to be extraordinarily valuable in many cases, relapses have been not uncommon, and in many cases of central nervous system syphilis it has been unavailing. Penicillin as we now use it is not the final answer to the syphilis problem. But with better public health measures to detect and perhaps to compel treatment of early syphilitic infections, it will go a long way toward reducing the terrible consequences of this serious disease.

It is a long step to turn from a disease as serious as syphilis to the common cold. Perhaps it is paradoxical that the discoverer of the most important agent against infections should be depicted as suffering from a cold to such an extent that he could hardly receive his Nobel award at the ceremonies in Stockholm. There is no question but that the common cold with its aftermath of secondary infections is one of the most serious causes of disability and chronic illness. All available evidence indicates that it is not the virus phase of the common cold but the secondary bacterial infection that is the chief culprit. The organisms responsible for these secondary infections are, with perhaps one exception, highly susceptible to the action of penicillin. Do we have in penicillin, particularly in the form of sprays and oral dosage, an agent

for suppressing secondary infections and their sometimes irreversible tissue damage? As penicillin becomes more abundantly available we shall have the answer to this question. If it proves successful, it will, I am confident, confer a priceless boon on the millions who go through each winter with "the sniffles," sore throats, sinusitis, laryngitis, bronchitis, and pneumonia. It may even prove to have an effect upon the incidence of the most serious aftermath of upper respiratory infections, acute rheumatic fever.

Can we look forward to the elimination of the streptococcal, staphylococcal, pneumococcal, and meningococcal infections for which penicillin is specific? We need only review the history of other infections for which we have had for many years specific preventives and therapeutic agents to find the answer to this question. Smallpox, typhoid fever, diphtheria, and tetanus are still with us despite the fact that we have long had adequate measures available for preventing them. There are other factors entering into the picture which should have a restraining effect upon our earlier enthusiasm. It is now evident that the resourceful bacteria have a greater ability than we first realized for sidestepping the action of penicillin and other chemotherapeutic agents by developing forms increasingly resistant to these drugs. Clinical experience with penicillin thus far, with the recognition that resistant forms of bacteria may develop, has taught us one very important lesson about the use of this drug and any other chemotherapeutic specific. It might almost be expressed as the first clinical law in the use of such agents. Do not use penicillin or any other chemotherapeutic agent at all unless you are prepared to use enough to eliminate completely the infection.

While penicillin was shown to be almost without toxicity according to pharmacological criteria, as the drug has been used clinically an increasing number of patients have developed allergic reactions to it. In one institution the incidence of urticarial and other skin reactions has recently been as high as 15 per cent of the patients to whom the drug has been administered. Fortunately the reactions have in general not been severe. As penicillin becomes more widely used and particularly in repeated courses, we may expect this incidence of allergic reactions to increase in the normal course of events. And here a word of caution is in order. If penicillin proves to be an agent having a high incidence of allergic sensitivity, it may be the course of wisdom to reserve its employment for serious infections, rather than to risk the chance of using it in minor infections and not be able to administer it when life depends on the drug. Time and further experience will furnish the answer to this question. At any rate these facts all point to the necessity of adding more than one string to our bow. And it is important that we develop agents having differing catabolic actions upon bacteria. Research workers in chemotherapy are aware of our needs in this direction, and a variety of new antibiotics and synthesized compounds are being developed to strike down bacteria whichever way they may turn.

Not so long ago Sir Alexander Fleming said, "It would be remarkable if the first useful antibiotic, penicillin, to be discovered should be the last or even the best." Even while this was being said new antibiotics were emerging from the recesses of laboratories to be tested in animals and finally in clinics. More than fifty antibiotics have been described (most of them during 1945), but the most promising, possibly because the most intensively studied, is streptomycin. In 1942 Waksman and Woodruff identi-

fied a soil microörganisms, *Streptomyces lavendulae,* which produced a substance, streptothricin, having a selective bacteriostatic action against a variety of Gram-negative and Gram-positive organisms. It looked good at first but unfortunately exhibited a delayed toxicity, causing the death of mice several days after injection, a phenomenon even more marked in larger animals, including the monkey. Because of this Waksman and his associates turned to other related organisms. One in particular, *Streptomyces griseus,* had previously been isolated by Waksman from heavily manured field soil in 1916. In 1944 Waksman, Bugie, and Schatz succeeded in growing this member of the actinomycetes family on a complex medium consisting largely of corn steep and meat extract, and found that it produced a highly potent anti-bacterial substance called streptomycin. But of particular interest was the fact that streptomycin exhibited in the test tube activity against a wide range of bacteria, including Gram-positive as well as Gram-negative organisms. Significantly it also inhibited the activity of *Mycobacterium tuberculosis* in a dilution of 1 to 30,000.

Like streptothricin, early preparations of streptomycin caused reactions which were at first somewhat disconcerting. Upon parenteral administration of the drug to human beings, an acute, severe histamine-like action, consisting chiefly of flushing of the face, throbbing headache, nausea, vomiting, joint pains, skin rash, and a drug fever, appeared after two or three days of treatment. In certain animal species pure streptomycin leads to a fatty infiltration of the liver and the kidneys, which appears to be reversible if drug administration is discontinued. Fortunately the more highly purified preparations from which the histamine-like impurities have been eliminated do not cause the acute reaction, and thus far there is no evidence that the fatty infiltration occurs in man. At least it has not been disclosed by any known form of laboratory investigation, and so far as I know, all post-mortem examinations on patients treated with streptomycin have been negative in this important respect.

From a straight pharmacological standpoint, streptomycin is not toxicologically inert as is penicillin; but with this exception there is no potent chemotherapeutic agent of comparable activity which has a lower acute and chronic toxicity.

Streptomycin is very rapidly absorbed after subcutaneous and intramuscular administration, the maximum concentration in the blood occurring within 15 to 30 minutes. The concentration decreases in the next 5 to 6 hours to levels below accurate measurement. It appears to be eliminated from the blood stream somewhat more slowly than penicillin. Unlike penicillin, however, streptomycin is very poorly absorbed from the gastrointestinal tract. On oral administration one can detect no blood levels by methods presently available and 10 per cent or less appears in the urine.

Preparations of crystalline streptomycin have already been obtained, so that we have a basis for an accurate quantitative standard for determining the potency of this drug. The pure streptomycin base has a potency of approximately 800 to 810 units per mg. Streptomycin is highly soluble in water and appears to be more stable than penicillin in the presence of moisture.

The production of streptomycin does not appear to be more difficult at this stage of the game than that of penicillin. If anything it is easier to make. But streptomycin has one serious drawback—its progenitor, *Streptomyces griseus,* is a meat eater, and meat extract is one of the most expensive chemical intermediates with which in-

dustry has ever been confronted. Unless our chemists find a synthetic diet to substitute for meat extract, streptomycin will always be more expensive to make than penicillin. At present levels of production, which are still on a pilot plant basis, costs are in the neighborhood of $15 per million units, which is roughly a day's dose. However, we can count on a lowering of production costs when large scale production is placed in operation. We must not be impatient but should remember that the first discovery of the activity of this material occurred only near the end of 1944.

In any discussion of a new therapeutic agent there is always one important question—What is it good for? Let us keep in mind that we have had only small amounts of this drug and a little over a year ago its source was nothing more than one of the myriad of organisms present in heavily manured soil. In this short period of time it is almost impossible to obtain the volume of clinical data necessary for a sound appraisal of the worth of the drug. But the science of chemotherapy is moving faster than formerly and we already have a number of promising leads with respect to streptomycin. In fact we would not be at all surprised if streptomycin turned out to be as great a boon to mankind as penicillin. I am led to this speculation because the spectrum of penicillin is almost identical with that of the already known sulfa drugs, whereas streptomycin appears to include within its ambit groups of organisms against which we had no effective therapeutic specifics.

It is now clearly established that this antibiotic is specific against mixed urinary tract infections which have always proved troublesome in the past. Such infections are common in injuries to any portion of the genitourinary tract, and these infections occur almost invariably in neurological injuries involving the functioning of the bladder. There were many of these during the war.

Streptomycin has been highly effective in overcoming experimental tularemia infections in animals, although only a few human cases have been treated. The drug appears to be highly effective against the wide variety of Salmonella infections, both those limited to the gastrointestinal tract and rarer systemic infections with organisms of this group. In view of the widespread character of such intestinal infections, particularly in the tropics, streptomycin should prove a great boon to humanity. However, the evidence is not yet convincing that the course of typhoid fever has been modified by streptomycin. It has appeared to be successful in some cases, but the fact that it has not been dramatically effective in other cases is perhaps more significant.

An important advance is suggested by the successful employment of streptomycin in at least 4 cases of meningitis due to the influenza bacillus. Streptomycin may prove to be effective in some cases of undulant fever of human beings and Bang's disease of cattle, but early data offer no basis for forecast. As one might expect, streptomycin has been effective in the local treatment of mixed wound infections and particularly those of amputation stumps that resist healing.

Those interested in public health have been most anxious to learn as early as possible what can be expected of streptomycin in the treatment of tuberculosis. Because of the nature of the pathological lesions of tuberculosis, we cannot expect any drug to have a rapidly curative action, any more than we can expect immediate restoration of cities that have been reduced to rubble. It takes time to reverse a condition in which tissue destruction and fibrosis are so extensive. We must also realize that many forms of tuberculosis improve

spontaneously without treatment. On the basis of preliminary data it looks as if streptomycin would have to be administered in daily doses of not less than a million units for a period of seven weeks or longer. Based on the present manufacturing cost of $15 per million units, a course of treatment would cost in excess of $735 for the drug alone. This is a lot of money, but it is still less than the cost of prolonged rest in bed in an institution and the economic loss of earning power that results from present methods of treatment. But, taking all of these factors into consideration, there is a real basis for restrained optimism in viewing the prospects of streptomycin against human tuberculosis. To say more than this at the present time might be doing a disservice to the many unfortunate sufferers of this disease.

Streptomycin has a wide usefulness in veterinary medicine which I will not attempt to discuss at the present time. It is sufficient to say that it appears to be the first thoroughly effective therapeutic agent available for many of the infections that are so destructive to cattle, swine, sheep, chickens, and ducks.

In order to maintain a degree of perspective, let us briefly refer to a few historic milestones. Penicillin was produced in small amounts on a laboratory scale prior to 1940. In 1940 Chain and Florey and their coworkers devised methods for obtaining a considerable yield of penicillin, and in the same year a number of clinical cases were successfully treated in England. But it was not until 5 years later, with all the pressure of a war, that penicillin was available for all needs in adequate amounts. Let us keep this time schedule in mind when we consider streptomycin supplies.

The activity of streptomycin was not known until 1944. To produce adequate amounts of the drug, large plants will have to be constructed. Some of these are under way. To equal the record set by penicillin, we would have until 1950 to produce adequate amounts of streptomycin. It looks now as if a moderate supply would be available in 1946 and adequate amounts in 1947. In the meantime, papers on streptomycin and popular articles have made the medical profession and the public aware of its therapeutic promise. I see no objection to this because I believe that all functions in a democracy should be subject to the white glare of public attention. But an increasing number of distress calls for streptomycin are being received. It is impossible to meet these requests, even for the cases that are most meritorious. This situation presents a challenge not only to the medical profession but to the pharmaceutical industry as well.

When penicillin was insufficiently available, machinery was set up for allocating the drug through the Office of Scientific Research and Development of the National Research Council. It was capably administered by Dr. Chester Keefer of Boston. It is to be hoped that the streptomycin problem will be met as intelligently and effectively in peace as the penicillin problem was under the stress of war. In my judgment, it is imperative that the medical profession in conjunction with the industry take steps at once to provide machinery for allocating streptomycin through a central organization to those cases in which streptomycin is known to be effective and in accord with their urgency. Such allocation must also take into account the amounts necessary for the orderly progress of clinical research. Perhaps Dr. Chester Keefer can be persuaded again to devote himself to this labor of love.*

* A civilian allocation program went into effect on March 1, 1946, with Dr. Keefer in charge.

Our attempts to synthesize proteins, quinine, and penicillin have taught us a lesson. It is that there are many chemical processes which low forms of life can do more efficiently than man. It has shown us again that discovery of nature's secrets is just as important as invention. There are thousands of low forms of life that remain to be studied. Among these are undoubtedly many that can be turned to the task of manufacturing substances useful to man. As Fleming suggested, let us hope that there will be found among them useful biotics and antibiotics that will make penicillin and streptomycin seem like crude pioneers in a new era of therapeutics and hope for man.

A New Answer to an Old Problem

Dairymen, milk plant operators, public health officials, and others concerned with the protection of milk supplies against contamination by flies will find a practical answer to this problem in *The Use of DDT in the Control of Flies on Dairy Farms,* a new pamphlet outlining procedures formulated by Professor H. H. Schwardt, of the Department of Entomology, Cornell University.

DDT offers an efficient means of fly control at a cost so low that no dairyman can afford to be without it. The pamphlet gives pointers on the forms of this chemical most suitable for use on dairy farms, where to obtain them, and how to apply them; specific purposes for which each may be used to the best advantage; various types of sprayers and where they can be purchased; and measures for the protection of man and animals against accidental poisoning by DDT.

The Use of DDT in the Control of Flies on Dairy Farms is sponsored by a number of official city and state agencies in the New York milkshed including the New York State and City Departments of Health and the Westchester and Nassau County Departments of Health. Milk dealers in New York City plan to distribute this publication without charge to producers in the metropolitan area. The New York State Department of Health has a limited supply for free distribution to interested persons Upstate. Requests should be addressed to the Bureau of Milk Sanitation, New York State Department of Health, The Governor Alfred E. Smith State Office Building, Albany 1, New York.—New York State *Health News,* June 3, 1946.

The Challenge to the Voluntary Health Agency*

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THE Study of Voluntary Health Agencies was conceived in 1940 by a coördinating committee of the National Health Council, of which Dr. Louis I. Dublin was the very able chairman. The Council authorized its committee "to make application of the Rockefeller Foundation for a grant of $75,000 to finance a study into the character of the organization of private health agencies in the field, their relationship to each other and to the several National Associations comprising the Council." Furthermore, it was desired to determine the implications of the findings so far as the national voluntary health associations were concerned. For many years, much effort had been put forth by those agencies to coördinate their efforts on the national level in the interest of efficiency and economy. It seemed to them that the next great step in this direction could be taken only after a study had been made in states, cities, and counties where the effects of coördinated effort, or lack of it, could be most readily appraised. It was in those local areas that the service was directly delivered to the beneficiaries. It could, therefore, be best measured on the spot, a proper evaluation made of the place of the private organization in the general health picture, and its most effective structure, function, and sponsorship determined. Such at least were the goals as they were expressed in 1940; it was a most timely, far-sighted and courageous action on the part of the National Health Council.

The Rockefeller Foundation, through its Division of Medical Services, Dr. Alan Gregg, Director, was interested in the project and provided generously for its support. Later, it made available as director of the study that wise, gifted, and experienced apostle of public health, its vice-president, Selskar Michael Gunn. His death in August, 1944, was a tragic loss to public health and a host of friends. Mr. Gunn began what he considered a profoundly important, challenging task in the fall of 1941. An advisory committee of 31 outstanding leaders in health work was appointed, from which an executive committee, consisting of Drs. Dublin, Atwater, and Hiscock, Emilie Sargent, and Bleecker Marquette, was selected.

Fifty-five cities and counties in 25 states were chosen for intensive study. Key people throughout the country were consulted, and five schedules or questionnaires were prepared. It was decided that the large field presented by the hospital and its out-patient department would be left for others to study. There remained for our study the very large field of the voluntary health agency, which we defined as an organization holding periodic meetings, rais-

* Presented before the Victory Meeting of The Public Health Association of New York City in collaboration with the American Public Health Association in New York, N. Y., December 13, 1945.

ing funds through voluntary contributions, and expending them for the promotion of health. In this restricted field we found an amazing number of agencies, over 20,000 in fact, when the Red Cross branches as well as chapters were included.

Despite the inescapable questionnaires, the approach was essentially informal, and its success depended upon winning the confidence and genuine collaboration of those we visited. And rarely did we fail to receive the most complete coöperation. The busiest executive, board member, or health officer arranged his time to give us his unhurried opinions. We are thus profoundly grateful for the generous help of all who made the study possible.

Our interviews varied from an hour to twenty-four hours—the latter agreeably spread over several days. Our interest was not in the quantitative aspects of an agency's work but in its origins, growth, achievements, failures, relationships, problems, and future planning. What was its form of organization, how thoughtful was its planning, how did it coöperate with others? And, always, what was its attitude toward the local health department and the medical society? We did not come bringing panaceas, nor could we have performed our mission if we had complied with the many earnest requests to remain and help work out solutions to local problems.

Our assignment, covering three years' work, brought us into the thinking of 509 agencies, city, county, state, and national, 98 health departments, 45 other official agencies, 60 meetings with groups—a total of 712, representing 1,090 interviews. There were, in addition, 52 replies to questionnaires sent to agencies in cities we did not visit, and there were 100 interviews with 46 national civic and welfare organizations only partially concerned with health.

The synthesis of such a mass of facts, opinions, and impressions, covering so varied a species as the voluntary health agency, presented a difficult problem. It was soon seen that the study did not lend itself to valid, statistical treatment, and that a purely descriptive method would have been bewildering. Accordingly, the interpretive method was chosen. This meant that our specific and general findings and conclusions had to be arrived at on the basis of our overall experience and judgment.

It is not necessary for me to defend the voluntary health agency. You know its great contribution as pioneer, as demonstrator, as educator, as ally and critic of the health department, as promoter of health legislation, and sometimes as coördinator and planner of community health.

What then, is needed in the immediate future? It is necessary, I feel, that the voluntary health agency should be touched by the quickening finger of desire, desire to become the more effective organization it can and must be. There is no longer place for the smug, self-satisfied board or executive. There is no place for the uncoöperative, the dog-in-the-manger, or the ultra-rich agency; no place for the agency with the pinch-penny board, half-paid executive and piffling program. There is indeed much that is deplorable in voluntary health agencies. They have lacked the kind of leadership that can stir the imagination of the man in the street, and can produce a health program that really means something and which enlists the community behind it, with its shoulders as well as its dollars. The extremes of poverty and wealth in the funds collected by the local and national agencies, funds gathered regardless of relative health needs, is a clear sign of the irrationality of our competitive money raising campaigns.

The multiplicity of small, weak agencies, with dreadfully limited programs, was revealed throughout our survey. These, of course, are hangovers from the glorious days of truly "free enterprise" when anybody with half an idea could start a weak-kneed agency which was a credit to no one. But the result has been much duplication of effort. There are often not only two official public health nursing services, but two, three, or four voluntary nursing services in a community. We ran across thirteen separate services in one city. What waste this represents in duplication of work, time, and transportation, in lack of supervision, uniformity as to standards and procedures, and in the absence of community planning, is hard to conceive. The interest in infant and child welfare, and especially in the crippled child, is likewise duplicative and poorly coördinated.

We found almost everywhere that the voluntary health program was not an integrated or unified one but as separated, broken-up and specialized as the scattered pieces of a mosaic. However necessary each new agency may once have been to arouse public interest in attacking a newly recognized health hazard or disease, it does not follow that this pattern of the past must remain the pattern of the future. Thoughtful citizens today cannot understand why there have to be so many separate efforts, nor can they readily appraise the many appeals for funds that come to them. Certainly it seems like wasted effort and poor organization. The trend, we are convinced, is in the direction of the single, all-inclusive organization. On the grounds of logic, necessity, efficiency, personnel, and financing, we can no longer justify the separate existence of so many specialized agencies. There is no reason why a voluntary agency should not carry on a broad, unified program as effectively as the official agency does today.

Trained workers in the voluntary health field have been altogether too few. With the exception of our public health nurses, most have been trained only in the school of hard knocks. We do not get the pick of the crop. And it is small wonder. An aggressive move to recruit the best, to train them better for their tasks and to pay them proper wages is long overdue. The art of administration is also largely teachable, on a postgraduate level at least, but it is seldom taught.

On the local level, then, we found much that voluntary health agencies lacked. And so naturally, after making the diagnosis, we prescribed the treatment for revitalizing them. We urge:

1. That each agency engage in a searching self-analysis, with occasional help of expert counsel, of its present goals, activities, functions, methods, and relationships.
2. That it concentrate on the task of strengthening its leadership, executive, and board.
3. That it achieve coördinated health planning with other health agencies through a dynamic health council.
4. That their appeals for public support be simplified and unified.
5. That the agencies transfer appropriate activities to the official agency.
6. That they recognize the primary position of leadership of the official agency, and exert their influence to strengthen and support such leadership.

Furthermore, in order to determine the effectiveness of unifying in one strong organization all related health promotional voluntary agencies, demonstrations should be set up, with national assistance, on local and state levels, with a program giving appropriate emphasis to all aspects of a unified health program.

Such is the prescription. Will the patient take it? There is already a good deal of evidence that the needle is under the skin. While it is still early to judge results, a number of re-

quests have come to the National Health Council for counsel and advice. In Hartford, the implication of the study for the local Health Council and the Visiting Nurse Association has already been considered, and board members are individually using the Self-Evaluation Schedule for Voluntary Health Agencies, which appears as Appendix III in the volume. The same is true in New Haven and Hamden, and copies have been sent to all VNA's in the state. An agency in Boston is following the same procedure. Elsewhere, a number of institutes to study agency problems are being planned.* If a qualified staff were available in the National Health Council, as we hope there soon will be, there would be an eager demand for consultative services. And, may I add that, in preparing this book for publication, it was the hope of the authors and the executive committee that it would provide that disquieting sense of attainable goals unattained, and of embarrassing questions unanswered, that would keep agency boards and executives on their toes for some time to come.

On the national level we found the same unevenness as on the local level, the same specialization, the same competition for support, the same extremes of wealth and poverty. The sixteen principal national agencies (three of which are not members of the National Health Council) are certainly the fountainheads of technical information and advice, of stimulation and encouragement to their state and local affiliates, from which they, in return, receive support. The development of methods for advancing the professional education of their health workers falls in large degree upon these national agencies. Likewise the standardization of techniques, medical research, statistical and social studies, and authoritative publications are particularly their task. But the advantages that come from concentrating on a limited objective are in a measure neutralized by the restriction of the work of each organization to a single disease or organ, with other important health needs negelcted. Our answer to that weakness is not the Utopian consolidation of all agencies into one. Rather it is a strong, nationally supported, ably-led National Health Council, which could speak with authority and provide national leadership for all needs in the voluntary health field. With the strongest lay sponsorship and the ablest executive direction, with a highly competent field staff, a vitally compelling, dynamic, nation-wide program of health education, financial support would be assured. The goals common to all national agencies would be immensely furthered and a more complete program assured. From such a Council would come eventually a pooling of the fund-raising appeals of our national agencies, along lines similar to the National War Fund, in coöperation with the Community Chests.

Under the stimulus of such a unifying plan for voluntary activities, the American people would, for the first time, have an opportunity to get behind a broad, unified attack upon their common problems of health and disease. Out of the experience of budgeting would come more unified planning and a more integrated program of work. The joint efforts would strengthen community solidarity. They would serve to establish a wider understanding of the essential unity of the human being and the ultimate attainment by him of the highest possible level of physical and emotional health.

These are not exclusively the hopes of Selskar Gunn and myself, although we accept full responsibility for them.

* Since December 13, 1945, reports indicate that many agencies, both local and state, are using the book as the basis for discussion and study. The self-evaluation schedule particularly is being widely used.

They are the convictions of the members of the executive committee who have given unremitting study, encouragement, and advice to the authors and are still laboring to bring the recommendations to fulfillment. We have had the counsel of many able persons in the health and welfare fields and our conclusions are substantially those arrived at by a group of forty leaders who gave several days to their considerations. We have been amazed at the number of prominent national figures who have come forth and asserted their conviction of the necessity and inevitability of a pooling of fund-raising appeals.

This study, we believe, has not so much started a movement of significance as come forward at the psychological moment to crystallize it. We have great confidence that 1946 will see far-reaching developments for the future of voluntary health agencies.

U. S. Army Studies on "Q" Fever Reported

According to a report from the Office of the Surgeon General, U. S. Army, Washington, "Q" fever, a pneumonia-like disease first described from Australia, apparently is endemic around the Mediterranean area. Scattered outbreaks have been reported among American troops in Italy, Greece, and Corsica.

Study of these outbreaks by medical officers on the spot at an Army General Medical Laboratory and by the Commission on Acute Respiratory Diseases of the Surgeon General's office have thrown considerable light on this supposedly rare illness and have established that it is (essentially) identical with the so-called Balkan grippe which was epidemic in Greece in 1942.

The responsible agent has been identified as a very minute, rod-shaped organism belonging to the family of Rickettsia similar to the organism which causes typhus fever. It has been impossible to establish the means of transmission, except that evidence suggests that the causative organism apparently is inhaled in infected dust.

In laboratory outbreaks the disease appears to be extremely infectious. Accidental infections have occurred in almost every laboratory where experimental work with this Rickettsia has been conducted. It is likely to be confused with atypical pneumonia, of which the causative agent has not been identified. The syndromes of the two are somewhat similar.

A significant finding of the Army studies was that "Q" fever Rickettsia becomes much more virulent with successive passages through the blood of experimental animals. The malady comes suddenly with chills, sweats, aching muscles, and frontal headache. The victim usually is incapacited for two weeks or more.

Infectiousness of the "Closed Case" in Tuberculosis

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AN inquiry into the adequacy of public health criteria for classifying a case of tuberculosis as "closed" (interpreted by many physicians to mean non-infectious) was indicated by an analysis of the statistics of 1,080 children of the Tice Clinic of the Chicago Municipal Tuberculosis Sanatorium. This study is unique in that all of the children under consideration were followed since birth and the tuberculosis status of the households was checked by the standard laboratory methods. In this regard it differs from clinical surveys, which are reviewed.

The experiment of the Tice Laboratory and Clinic, which is organized primarily for the purpose of studying the efficacy of BCG vaccination, is divided into two sections: one concerned with children from homes free of tuberculosis as confirmed by x-ray of all household members; the other with children from homes with tuberculous cases. Both groups come generally from the poorer and more crowded districts of Chicago, where mortality rate of tuberculosis and the tuberculin reactivity are high.

The index cases in the contact groups are cases of pulmonary tuberculosis but established as presumably "closed" immediately before and during the period of this study. That fact was ascertained at the onset by concentration, direct smears and cultures of 24 hour sputum specimens, and subsequently by monthly sputum concentration and direct smears. In the event tubercle bacilli are isolated the patient is separated from children under 16 in accordance with Illinois State Law.[1] All cases in which a positive sputum has been shown must by Illinois law be considered open for a period of at least three months and thereafter until three successive specimens of sputum, collected at intervals of one week, contain no tubercle bacilli. The sputum examinations must be made by a laboratory approved by the Illinois Department of Public Health. Furthermore, physical examination of the patient must indicate that the type of disease could be such as to coincide with a negative sputum.

Alternate children of both contact and non-contact groups are vaccinated with BCG at birth or within three months. The other children are registered as controls at the same time. All are given semiannual physical examinations, x-rays and tuberculin tests. The Vollmer patch test is used, and where there is a questionable reading, it is checked by the Mantoux test (O.T. 1–100 dilution or 1 mg.). All contact children are maintained in foster homes from birth until 6 weeks to 3 months of age depending on the

relationship and the severity of the disease in the index case. Approximately 60 per cent of these children are colored.

This report is concerned with a comparison only of the controls in the contact and non-contact groups with respect to the tuberculin reactivity. Table 1 shows that among the children 1 year of age 2.24 per cent of the non-exposed, and 21.6 per cent of the group in contact with tuberculosis presumably closed, were positive to tuberculin. At 2 years of age the percentages were respectively 9 per cent and 52.7 per cent (Table 1).

TABLE 1

Results of Tuberculin Reaction in Non-contact Children and Children in Contact with "Closed" Cases of Tuberculosis

Non-contacts				*Contacts*			
Age in Months	*No. Tested*	*No. Positive*	*Per cent Positive*	*Age in Months*	*No. Tested*	*No. Positive*	*Per cent Positive*
3–7	1,025	2	.19	3–7	55	4	7.3
8–12	939	21	2.24	8–12	37	8	21.6
13–18	849	40	4.07	13–18	32	10	31.3
19–24	776	70	9.00	19–24	19	10	52.7

There is a great discrepancy between the sizes of the two groups because of the relative incidence of tuberculosis and because the work with the contact cases was not begun until 1940—three years after the non-contact study was initiated. Because of this discrepancy the results can indicate only a trend—one, however, that is definite.*

Surveys reported by Brailey [2] and Mac Phedron and Opie [3] have disclosed that contacts to "closed" cases although showing a lower tuberculin reactivity than contacts to open cases, have a higher rate of positivity than non-contact children living in similar neighborhoods.

Brailey's survey was made on families registered between 1928 and 1937. Sputum was examined as often as practical. Those index cases considered negative admittedly may have been positive at times. The then current accepted techniques of sputum examination were apparently employed by Brailey as well as by Mac Phedran and Opie whose work appeared in 1935. In neither case was there any mention of lavage. Brailey's study shows the following results among white children in the 0–4 age group: positive reactions to 1 mg. or less of tuberculin were found in 57.8 per cent of 199 children exposed to open tuberculosis, 18.4 per cent of 38 children exposed to "closed" tuberculosis, and 3.2 per cent of 158 non-contacts. Although the chance of infection is 18 times greater for those exposed to open tuberculosis than non-contacts, it is still 6 times greater for "closed" case contacts than non-contacts. These statistics for the non-contacts were compiled by Frobisher.[4]

In the same age group, Mac Phedran and Opie found 79.3 per cent of 145 exposed to open tuberculosis positive to 1 mg. or less of tuberculin, 28.7 per cent of 108 in contact with "closed" tuberculosis, and 18.1 per cent of 210 non-exposed children.

Since children in contact with so-called "closed" tuberculosis have a higher tuberculin reactivity than control children of the same neighborhoods but without household exposure, the "closed" index case in the home must be the source of infection. Therefore, the question arises: Are our methods for determining a case of tuberculosis as closed sufficiently precise and reliable?

* Note at end of article.

Does the doctor instruct the family to guard against the constant hazard of infection or does he foster a false sense of security because the case is "closed"? The regulations observed by the U. S. Public Health Service conform with those formulated by the committee on diagnostic standards of the National Tuberculosis Association.[5] These can be considered typical of the regulations in general public health usage.

According to these regulations a specimen of sputum is considered negative if no bacilli are disclosed on concentration. Following observation or treatment, a patient in order to be classified as "apparently arrested" must have one adequate specimen of sputum or gastric lavage reported negative. It is mentioned as desirable to call a specimen of sputum negative only after examination by all available methods—culture and animal inoculation as well as smear of the sputum; and culture and animal inoculation of stomach washings. However, according to *Diagnostic Standards*, "such rigid standards cannot be applied at present because many tuberculosis institutions are not equipped for this work. For the time being, it is therefore suggested that minimal standards be applied."

The recent literature has demonstrated the importance of gastric lavage in determining the presence of tubercle bacilli; Robinson and Dunn[6] in 1943 compiled all results of gastric washings in the available literature. A total of 12,040 stomach lavages were done on apparently closed subjects with 36.8 per cent positive results; 6,843 were on children with 36.6 per cent positive and 5,197 on adults with 37.1 per cent positive. In the first thousand lavages in their laboratory in "no sputum" cases and on patients with smears negative on concentration, 30.3 per cent were positive; 3.9 per cent were positive on smear of concentrate, and the rest on culture and/or guinea pig inoculation. More than one-third had had negative sputum cultures previously

Foley and Andosca,[7] reporting on 639 cases with no bacilli on direct smear or by concentration methods, found 29.2 per cent were positive by direct smear of lavage material. Of 60 stomach specimens, 25 per cent were positive by direct smear, 65 per cent by guinea pig inoculation.

The value of gastric lavage in cases with no sputum is demonstrated by Decker, Ordway, and Medlar.[8] By repeated examination of sputum and stomach washings, through culture and guinea pig inoculation, 67 of 97 cases of minimal tuberculosis were found positive during the five years 1936–1940, with 41 of 56 no sputum cases showing tubercle bacilli. From 1930 to 1935 only 24 of 172 minimal cases were positive. During the earlier period, no gastric lavages were done and only cases with sputum were tested by culture and guinea pig inoculation.

A recent study by Koons[9] reemphasizes the generally known superiority of guinea pig inoculations over smears of concentrate. Of 590 specimens of sputum, pleural fluid, gastric washings, and other questionably tuberculous fluids, 6.1 per cent were positive on direct smear after concentration, while 21.8 per cent were positive on guinea pig inoculation.

The importance of more refined and scanning laboratory procedures is indicated by a study by Ordway, Medlar, and Sasano[10] of 99 cases without sputum or with sputum negative to smear on concentration. Seventy-six were positive by culture or guinea pig inoculation on monthly tests one or more times over a period of one year. Gastric lavage specimens were employed in the absence of sputum. However, 62 of the 76 positive individuals showed bacilli only on 72 hour sputum samples

or after two consecutive gastric washings. Only one of 12 patients with thoracoplasties and 9 of 28 patients with pneumothorax were consistently negative.

It is evident, therefore, that our minimal public health standards need revision upward—with the requirement of periodic culture and/or guinea pig inoculation of pooled sputum samples covering several consecutive days, and gastric washings from patients without sputum or with consistently negative sputum. Medlar and his colleagues recommend as minimal requirements concentrated 72 hour sputum samples or two consecutive gastric washings for the "no sputum" cases.

Although a so-called "closed" case is not as grave a source of infection as a frankly open one, it is more insidious. From the results of employment of modern and thorough methods, it is clear that most discharged patients intermittently release tubercle bacilli.[10] The physician too frequently assures the patient and family of the non-infectiousness of the "closed case." As segregation of potential carriers is the basic measure which can effectively eradicate tuberculosis it is suggested that until more rigid standards can be applied and more tuberculosis institutions are equipped to carry out efficiently the necessary laboratory procedures, the term "closed" be dropped.

The physician and the public must be constantly impressed to respect and treat tuberculosis as a highly contagious disease.

SUMMARY

1. A singularly well controlled study of 1,080 children followed since birth indicates a markedly higher rate of tuberculin positivity in children exposed to the so-called "closed" cases of tuberculosis than in non-contact controls.

2. Current public health criteria for classifying a tuberculosis patient as "closed" are given and their adequacy is questioned.

3. It is suggested that until the rigid standards formulated by the U. S. Public Health Service and the Committee on Diagnostic Standards of the National Tuberculosis Association can be complied with, the term "closed case" be dropped.

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* FOOTNOTE

Applying the formula of Significance of the difference between proportions,

$$\sigma D\% = \sqrt{pq\left(\frac{1}{N_1} + \frac{1}{N_2}\right)},$$

in the various age groups reveals that in the 3–7 month group there are 48 chances in 100 that the difference is a chance difference due to sampling; in the 8–12 months group it is 0.000000002 chances in 100; in the 13–18 months group 0.0000000002 chances in 100, and in the 19–21 months group 0.0000002 chances in 100.

Hematuria Due to Picric Acid Poisoning at a Naval Anchorage in Japan

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THE toxic effects of picric acid are well known in the field of industrial medicine. As far as we are aware, however, poisoning due to the ingestion of this chemical in water distilled from the sea has heretofore not occurred as a public health problem. Although circumstances leading to poisoning by picric acid of men aboard ships may never recur, the small outbreak of hematuria induced by this compound is considered sufficiently interesting to warrant reporting.

Two persons were found to have microscopic hematuria by an alert medical officer on board one of the ships in the naval anchorage near Wakayama. The urinalyses were routine, on patients being treated for irrelevant conditions. He then examined the sediments of urine, after centrifuging, from 245 men, representing almost the whole ship's company. All were found to have asymptomatic, microscopic hematuria. In consequence, an investigation was undertaken by Naval Epidemiology Unit No. 402 stationed at Yokosuka, the results of which indicated that hematuria was widespread among the personnel of various ships. Up to 15 specimens of urine were examined from personnel on each of 28 ships; one or more persons on 25 of them were shown to have hematuria.

Table 1 is the summary of the findings obtained by the epidemiology group. Of particular significance was the fact that the three persons constituting the unit from Yokosuka themselves developed hematuria within 24 hours after they began drinking water aboard one of the ships; the condition disappeared shortly after their return to their base. Similarly, 6 volunteers aboard a ship having just entered the harbor, whose urine specimens at the time of arrival failed to reveal any red blood cells, developed slight hematuria after drinking water from one of the ships that had been at

Table 1

Analysis of Results Obtained in the Survey by Epidemiology Unit 402

	+	++	+++	++++	*Total Pos.*	*Total Neg.*	*Total*
No. of urine specs.	83	33	12	10	138	245	383
Per cent	21.6	8.6	3.1	2.6	35.9	64.1	

\+ = 1–10 r.b.c. per l.p.f. in the urinary sediment after centrifuging.
++ = 10–20 " " " " " " " " "
+++ = 20–30 " " " " " " " " "
++++ = 30+ " " " " " " " " "

the anchorage for some time. No evidence of hematuria was reported among military personnel ashore.

By way of confirmation of the finding of hematuria at the anchorage, an independent survey was conducted by the laboratory director from a Naval hospital ship. Of 110 specimens from personnel aboard 11 ships, 16 were found to contain red blood cells. The existence of hematuria was thus firmly established. It was thought that other areas might be similarly involved, but dispatches from three distant ports, giving the results of examinations of about 1,000 specimens at each place,

TABLE 2

Composite of Salient Data

Ships Indicated in Order of Arrival at Wakayama	Number of Persons Aboard	Estimated Length of Time of Using Water Made at Wakayama Anchorage before Survey	Picric Acid Determinations				Urinalyses				Hematuria Reported before Present Survey
			P.p.m. in Fresh Water Sample	In 1st Effect Evap. Scale	In Scale from Pipe	In Urine	Number of Persons Examined	Number with Albumin	Number with Erythrocytes	Number with Pus Cells	
1	185	11 wks.	[a]	+++			15	0	0	0	Yes *
2	31	None					10	0	0	6	
3	273	5 wks.	2		++	+++	27	1	0	7	Yes *
4	309	10 wks.		++			30	0	0	17	Yes *
5	305	8 wks.	2[b]	++++	++++	+++	40	0	2	34	Yes *
6	250	8 wks.		+++			19	0	0	15	Yes *
7	802	8 wks.	2	++	++++	++	198	1	5	69[c]	Yes *
8	45	None					8	0	0	4	No
9	120	None					12	0	0	5	No
10	240	5 wks.					43	0	0	35	Yes *
11	175	9 wks.	0		+		47	0	0	12[d]	Yes *
12	275	6 wks.					15	0	0	5	Yes *
13	157	4 wks.	10	+++	+	++	9	0	0	0	No
14	156	6 wks.		++			15	0	0	8	Yes *
15	255	4 wks.		++			25	0	2	17	Yes *
16	90	4 wks.	0	−	−	−	21	0	0	9	Yes *
17	99	3 wks.	0		−	−	10	0	0	4	Yes *
18	56						9	0	0	5	Yes *
19	105	2 wks.	0–2	−	−						No
20	26						10	0	0	6	
21	60			+			18	0	0	12	Yes *
22	79	1 wk.		−	+++		10	0	1	6	Yes *
23		None		+							Yes *
24	94	None	0		−		10	0	0	7	Yes
25	208	None	0		+		20	0	0	1	Yes
26	81	None	0	−			9	0	0	9	
27	35	None					10	0	1	8	
28			0–2	−	+		10	0	0	7	No
29	204	None	0[e]	+++		+	10	0	0	9	No
30							10	0	0	5	
31	34	None					9	0	0	5	No
32	238	None					32	0	0	24	No

Note: Blank spaces denote absence of information.
Plus signs represent relative concentrations of picric acid.
[a] = Approximately 10 p.p.m. in sample obtained at time of outbreak.
[b] = Approximately 20 p.p.m. in sample obtained at time of outbreak.
[c] = Based on the examination of 106 specimens only.
[d] = Based on the examination of 17 specimens only.
[e] = Cargo water from Samar, P.I.
* = Ships studied in earlier epidemiological survey.

indicated that no such condition existed. Curiously, one report indicated that the urine specimens from all of 25 persons examined on one ship revealed evidence of hematuria on one day, but two days later this finding could not be confirmed. Up to this time the ship had never been at Wakayama.

We might have been inclined to suspect that the observation had been inaccurate were it not for the fact that studies subsequently undertaken upon scale from a section of water pipe from this ship (Table 2, No. 25) upon her arrival at Wakayama indicated the presence of picric acid. Thus she must have been exposed, somewhere, to the same poison contaminating the water of ships that had been for some time at the anchorage. Evidence of similar exposure found in a few of the other late arrivals at Wakayama was equally baffling.

Epidemiological considerations at this time pointed strongly to chemical contamination of the water. The possibility of bacterial contamination was quickly dismissed by laboratory studies. Accordingly, ships that had distilled water at this anchorage for drinking purposes were advised to dump the water, to wash the tanks farther out at sea, and to distill a fresh supply. Most of the ships did so. The hematuria was so trifling in most cases that the presence of albumin in the urine could not be demonstrated by the test employing heat and acetic acid. After the fresh water tanks were flushed, the incidence of hematuria declined, but the decrease was shared by some ships that continued to use the harbor water without cleaning their tanks.

Incidentally, abnormally large numbers of pus cells had been found in a considerable proportion of urinary sediments. There was no decline in the pyuria commensurate with that of the hematuria. The significance of this fact is not clear; it may have been related in some way to the chemical irritation of the urinary tract. In only 3 cases was there clinical evidence of involvement of the kidneys. One patient developed gross hematuria; another, hematuria, albuminuria, hypertension, and generalized anascarca; a third, hematuria, albuminuria, headache, fever, and malaise. All three had been transferred to a hospital ship just prior to our arrival. As far as is known, these represent the only cases of urinary tract involvement presenting clinical symptoms. The evidence that these conditions had been induced by the same agent causing the widespread microscopic hematuria was purely circumstantial.

PROCEDURE

Members of the Naval Medical Research Unit No. 2 were ordered to Wakayama to continue the investigation, since the studies undertaken prior to our arrival indicated that the hematuria was probably due to chemical contamination of the drinking water distilled from sea water in the harbor, the scope of our investigation initially could be, and finally was, limited accordingly. The epidemiological, chemical, and clinical laboratory aspects of the study were handled by the three writers respectively.

Epidemiological—From the epidemiological standpoint, it was important to determine what chemical might have been dumped in sufficient quantity to poison the drinking water made by distillation of the harbor water, and to obtain information regarding the time and place. The fact that Wakayama had been a prominent industrial city, prior to its virtual destruction by air attacks, indicated the necessity of a survey of existing industrial plants that might have discharged toxic wastes into the two streams that traverse the city and flow into the sea close to the anchorage. Several plants that either

were then, or recently had been, in operation were found to have manufactured or handled aromatic compounds capable of inducing hematuria if ingested. Although at the time it seemed that wastes from these plants might have been responsible for the poisoning, subsequent examination of water from these streams and from one at Kainan, together with significant discoveries elsewhere, compelled us to disregard this phase of the investigation.

We had heard that confiscated Japanese ammunition, including picric acid, had been dumped somewhere in that part of Japan. The Unit's chemist, acting on that bit of information, made discoveries that spurred efforts to learn the location and time of the disposal of picric acid. The commanding officer of the Army organization responsible for the seizure and dumping of picric acid in the area provided all the details; two areas in which picric acid was dumped were close enough to be of potential importance to ships in the Wakayama anchorage and to those coming there from the east.

An amount considerably in excess of 100 tons had been dumped roughly 15 miles in a south-westerly direction from the anchorage, over a period of 6 weeks, beginning 3 weeks before the first case of hematuria was discovered. The prevailing westerly wind, together with the tide running north along the coast at a velocity of 1 knot, evidently carried the acid, before it had become completely dissolved and dispersed, through the anchorage where the ships were pumping harbor water into the stills. Less than 25 tons of picric acid likewise had been dumped off the southern coast of Honshu not far from the course followed by ships coming to Wakayama from the east. Since experience had shown that picric acid, dumped in crates, could float ashore, dry out, and become explosive, care was taken to open all the crates and dump the chemical into the sea in powder form. Thus, unwittingly, the opportunity for poisoning was considerably increased.

Although there were puzzling exceptions, in general the ships that were significantly affected were those that had distilled water at Wakayama while the dumping of picric acid was in progress. A resumé of all of the findings is found in Table 2. Although one might have expected that fish would be poisoned by the picric acid, we were informed by the Fisherman's Guild at Wakayama that the fishing was better than usual.

Chemical—It was the task of the chemist to discover, isolate, and identify any toxic chemical compound that might be involved in the adulteration of the supply of drinking water. Aromatic amines or nitro compounds were suspected from the start of the study because of their known action in the induction of hematuria and also because of their general tendency to be carried over in the vapor phase in the distillation of water. It seemed extremely unlikely that heavy metals would be present in significant quantities in the harbor water or would be carried over in the distillation process. The information, received early in the investigation, that picric acid had been dumped somewhere in the general area, directed attention particularly to this compound.

Aromatic amines can be demonstrated by coupling their diazonium salts with beta-naphthol. The resulting colored compound is soluble in alkaline aqueous solution and insoluble in acid. In an acid medium the coupled aromatic compound can be extracted with chloroform, thus separating it, even in small amounts, from other colored material that remains in solution in the acidified, aqueous portion. Aromatic nitro compounds must first be reduced to aromatic amino compounds by treatment with metallic tin and hydrochloric acid, before the diazo color reaction can be

produced. This fact serves to distinguish them from the aromatic amines. The test for the presence of aromatic nitro compounds was made as follows:

To 5 ml. of the water to be examined, in a test tube, were added 0.5 ml. of concentrated hydrochloric acid and about 50 mg. of tin shavings. The mixture was heated in a boiling water bath for about 5 minutes and the supernatant solution was decanted into a test tube. After the solution had cooled to room temperature, about 50 mg. of sodium nitrite were added; the solution was thoroughly mixed and allowed to stand for about 5 minutes. Two ml. of a fresh solution of 100 mg. beta-naphthol in 100 ml. of 10 per cent sodium hydroxide were added, and the solution was thoroughly mixed and allowed to stand for 2 or 3 minutes. One ml. of concentrated hydrochloric acid and 5 ml. of chloroform were added and the mixture was thoroughly shaken. The color in the chloroform layer was noted, a positive result being indicated by a red color and a negative one by yellow.

The following samples were tested for the presence of aromatic amines and nitro compounds: (1) harbor water, (2) water from three streams emptying near the anchorage, (3) first effect evaporator scale from the stills of various ships, (4) scale from pipes carrying drinking water, (5) drinking water, including two samples, saved on two ships, that had been drawn at what was apparently the height of the outbreak of hematuria. The procedure for the detection of aromatic nitro compounds in the scale of the evaporators or in the fresh water system varied little from that given above. Approximately 5 gm. of the evaporator scale was treated with 10 ml. of water and 1 ml. of concentrated hydrochloric acid. As soon as the evolution of carbon dioxide was complete, the mixture was filtered and 5 ml. of the filtrate were tested as above. For the detection of aromatic nitro compounds in fresh water systems, a piece of pipe that had been in continuous use was removed. Into a two-front section stoppered at one end, 100 ml. of 10 per cent hydrochloric acid were introduced. The dilute acid was allowed to remain in the pipe for approximately 15 minutes and was then filtered to remove insoluble material. Five ml. of the filtrate was tested in the same manner as the water, except that no additional acid was required above that used in the extraction of the scale. Only galvanized pipe was tested; copper pipe could not be tested since copper ions interfere in the test for aromatic nitro compounds.

The harbor water at the time of our investigation failed to reveal any evidence of aromatic amines or nitro compounds, nor were these substances found in the water from the stream at Kainan. They were detectable in the two streams flowing through Wakayama, but the concentration was low. In the case of the first effect evaporator scale submitted by various ships, the case was altogether different; relatively high concentrations of aromatic nitro compounds (but not amines) were found in several instances, as shown in Table 2. In most cases the concentration was highest in ships that had not recently cracked the scale and that were distilling large quantities of water during the time the picric acid was being dumped. A similar condition was found in scale from pipes carrying drinking water. In only three instances were concentrations of aromatic nitro compounds in the drinking water itself remarkably high. In one instance the ship concerned had failed to wash the tanks and fill with freshly distilled water. In the other two instances the water tested had been drawn about 2 weeks previously, before the ships' tanks were flushed, and had been saved for future examination.

Since picric acid is a strong organic acid and since its alkaline earth salts are sparingly soluble, it was to be expected that a considerable amount of picric acid might adhere to the scale

in the fresh water system. The fact that aromatic nitro compounds were present in relatively high concentration in the scale of the evaporators and of the pipes in the fresh water system, was presumptive evidence that the chemical was picric acid, for neutral or alkaline nitro compounds would not be expected to adhere to the alkaline scale.

The isolation of picric acid was undertaken as follows: The dilute hydrochloric acid extract from a pipe that had been removed from the fresh water system of one of the involved ships was concentrated to about 10 ml. Sufficient sodium chloride was added to saturate the solution, which was then extracted exhaustively with small portions of ethyl ether. The ether extracts were combined and dried with anhydrous sodium sulfate. The ether solution was then evaporated to dryness and the resulting yellow residue was dissolved in about 10 ml. of hot absolute alcohol. A small amount of material that did not dissolve was removed by centrifugation. The alcoholic solution was evaporated to about 4 ml. in a boiling water bath. Upon cooling of the solution, large yellow crystals appeared. The crystals were removed by centrifugation and were dissolved with the aid of heat in about 3 ml. of glacial acetic acid. Upon cooling, yellow crystals again appeared. The crystalline material was collected by centrifugation and dried at 100° C. in a Fischer drying apparatus. The melting point of the purified product was found to be 119–120° C. (uncorrected). There was no depression of the melting point when the material was mixed with an authentic specimen of picric acid. The material isolated from the fresh water pipe was, therefore, picric acid.

Trinitrotoluene and trinitroaniline may have contributed to the hematuria. Since their properties are such that adsorption on evaporator or other scale would be neglible, evidence of these compounds would not persist for long. However, at the time that chemical examinations of the water and scale were undertaken, hematuria developed in two of our own Unit, indicating beyond reasonable doubt that picric acid was the responsible chemical.

Clinical—While the epidemiological and chemical studies were in progress, a clinical picture of conditions at the time of our investigation was being obtained. A questionnaire was delivered to every ship in the harbor. A majority of the questionnaires that were returned indicated that hematuria had been present on most of the ships, but that generalized skin rash, edema or albuminuria had not been observed. Information was obtained as to dates on which water, distilled at the anchorage, had been used for drinking purposes. An effort was made to secure urine samples from about 10 per cent of the men on each ship, and this goal was almost reached. Specimens from a total of 711 men were submitted. Urinary sediments were examined after centrifugation. In only 11 cases was there evidence of microscopic hematuria, 2 of them being in our own Unit which had only recently arrived. Albumin was detected in two specimens by the method using heat and acetic acid. The number of pus cells in the urinary sediment was abnormally large in a considerable proportion of cases. A random sample of urine specimens was tested for evidence of picric acid. The poison was found in a number of instances, even in the absence of any other demonstrable abnormality. Cell counts and bilirubin determinations were made on blood from a group of 20 men on two of the affected ships. The findings were within normal limits, except for a slight but definite elevation of the blood bilirubin level in one instance.

Most of the ships at the anchorage had ceased using harbor water a few days prior to our arrival. By the time

that chemical studies were undertaken, no evidence of aromatic compounds could be found in it, so a return to the use of harbor water seemed justifiable. Accordingly, one of the larger ships began distilling and using water from the harbor again. Urine specimens from a group of men on this ship were examined daily, and in none was there evidence of recurring hematuria.

DISCUSSION

The assembled evidence indicated conclusively that picric acid dumped near the naval anchorage at Wakayama was pumped into ships' stills and carried over with the vapor phase into the fresh water supply, inducing hematuria among those drinking the water. The danger of dumping high explosives near an anchorage where ships that distill drinking water are berthed, had not been generally appreciated heretofore. Poisoning by high concentrations of industrial wastes, while undoubtedly not contributory in this case, is always a theoretical possibility in harbors near industrial areas. Purification by fractional distillation would seem to be impractical. Possibly a filter of activated charcoal or of an activated resin would effectively remove such substances from the distilled water used for drinking purposes.

SUMMARY

An outbreak of hematuria involving many of the personnel aboard ships at Wakayama anchorage, in Japan, was due to the ingestion of picric acid in the drinking water. All evidence indicated that acid dumped in large quantities near the anchorage was distilled with harbor water, thus contaminating the fresh water supply.

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Teaching of Public Health Statistics

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PUBLIC health organization and medical care may be considered as a pyramidal structure with official and nonofficial agencies operating together to produce an effective program of community service. The supporting base of the pyramid is the unification of public health statistics, biometric analysis of field and laboratory data, and the quantitative evaluation of service records. The function of statistics is to collect, summarize, analyze, and present numerical data for administrative units and services which are integral parts of the total program of public health.

In the past, public health organization limited its activity to one service and then to another as need arose, giving little consideration to the importance of overall administration. At the present time, the emphasis is placed on the integration of services with each other and with basic administrative procedures within the framework of the organization. Furthermore, administrators of programs of public health are taking cognizance of the importance of knowledge concerning the physical, biological, socio-economic, and medical background of the populations under their jurisdictions.

The investigation of demographic and public health data and the statistical appraisal of the limitations and effectiveness of correlated programs are functions of public health statistics. The improvement of procedures of registration of births and deaths and the reporting of disease, the design of all forms, including those of service records and summaries, are important responsibilities of the public health statistician. The continuous study of reports and records by intelligent statistical analysis and interpretation becomes the foundation of public health and the indicator of its progress.

Bureau chiefs and administrative officers, as well as field and laboratory personnel, should be trained to appreciate the usefulness of numerical data. They should understand what can be accomplished by the application of statistical methods and the value of the continuous checks provided by periodical summarization which may be used subsequently in directing field, office, and laboratory activities.

For the past twenty-five years, statistics has been one of the arteries of basic instruction in public health at the University of California, a result of the teaching philosophy of the late Dr. John Nivison Force, one-time Professor of Epidemiology and Chairman of the former Department of Hygiene. As early as 1920 it was pointed out that health officers and public health administrators would be able to do a better job for local communities and the State, if the University would educate and train alert young students who would be available for positions in offices and laboratories after graduation as majors in public health. It also was believed that sanitarians (then inspectors), public health nurses, laboratory technicians, and, of course, administrators should receive enough instruction in public health statistics and biometry to make them aware of the usefulness of these quantitative techniques. Then, as now, training in

statistics and biometry was considered essential for persons who would receive degrees in public health, whatever their particular field of specialization. Inasmuch as candidates for postgraduate training were few in number at that time and were usually physicians, it seemed unrealistic to expect them to enter the field of statistics with its more or less limited vocational opportunities. Non-medical graduate students often were not able to present evidence of adequate training in the sciences which were believed to be necessary for an understanding of public health.

For this reason, undergraduate training in public health was introduced to fill the need for trained auxiliary personnel in departments of public health. Each year many students enrolled in an introductory course of lectures on preventive medicine and public health and the history of epidemiology. Those who became interested in possible vocational opportunities for community service in public health statistics and laboratory work, majored in public health. They were required to complete basic courses in chemistry, physics, zoölogy, bacteriology, and economics (practically a pre-medical program) so that they could enter junior and senior courses in advanced microbiology, biochemistry, protozoölogy, parasitology, social economics, public administration, and public health courses in administration, biometry, epidemiology, laboratory, and statistics. After graduation, students so prepared could enter positions in public health departments either as public health analysts or laboratory technicians. The result was a process of public health education of health officers and administrators by infiltration of young enthusiastic proponents of public health.

This approach to the training of public health personnel has been somewhat modified since the organization of the School of Public Health at the University of California, but in effect the basic requirement of a rather complete background in the physical, biological, and social sciences remains unchanged for both undergraduate and graduate students, and all are required to complete at least basic courses in public health statistics. The students may be grouped into the following categories:

I. *Undergraduate students* who will enter positions in local, state, or federal units of service, and in voluntary health agencies as laboratory technicians or public health analysts.

II. *Graduate students*

1. Medical graduates who wish to become health administrators or epidemiologists.
2. Medical and non-medical graduates who wish to specialize in one of the following fields:

   Biostatistics
   Health Education
   Industrial Hygiene
   Laboratory
   Maternal and Child Hygiene
   Sanitary Engineering

III. Special in-service training groups

1. Local deputy registrars
2. Latin American health educators
3. Naval sanitation officers
4. Sanitarians
5. Other special groups

Although the introductory courses in public health statistics and biometry are more or less formal in presentation since they are attended by students from curricula and departments other than public health, the classes are provided with bibliographical material and data for projects, giving students opportunities for individual investigation.

In the basic course of public health statistics the subjects of enumeration of population and housing, registration of births, deaths, marriages, and divorces, the reporting of disease, and the evaluation of surveys are discussed with special reference to the authority under which each kind of collection is made. Sections of the *California Health and Safety Code* which refer to pro-

cedures of registration and reporting are studied in detail. Students are required to work out questionnaires on subjects of public health which are of special interest to them. Test runs for the effectiveness of the questionnaire are made, using members of the class as informants. If necessary, the questionnaires are then revised, a numerical code is set up and a punch card devised for mechanical tabulation of information. Because of the close coöperation between the California State Department of Public Health and the School, original data for class use and demonstration are always available. To illustrate, anonymous data from medical certificates of death are used by the students to acquaint them with coding procedures, the *International List* and *Manual of Joint Causes of Death*, and the *Supplementary Instructions for Coding* published by the Division of Vital Statistics of the United States Bureau of the Census. Among other projects included in the course of instruction is an introduction to methods used in a demographic study of an area.

Three major points are emphasized in all class discussions: (1) that the demographic background of the population served by a public health organization must be investigated; (2) that integration of all public health records is essential to availability of information, whether they are birth or death certificates, reports of disease and epidemiological records, service records of public health nurses, sanitarians or laboratory technicians, or laboratory reports; (3) that effective public health administration requires that trained public health statisticians should be responsible for the maintenance of files and the continuous and current analysis of reports and records, so that information is readily available for study.

Conference hours are scheduled when instructors are available for questioning by students. During these periods the students are given the opportunity to learn the operation of various kinds of electrical calculating machines. The statistical laboratory is open at all times. Students are encouraged to become acquainted with census publications, reports of state planning boards, national foundations and health departments, and professional journals.

The basic techniques of biostatistics are taught in an elementary course in biometry. Methods of analysis are presented with reference to an outline of the general procedure of a scientific investigation (field or laboratory). The use of these statistical methods and the importance of inferential reasoning as applied particularly to medical research and epidemiology is discussed.

The introductory courses of public health statistics and biometry are prerequisite to the course in epidemiology. There are continuation courses in all three subjects for those students who wish to qualify for advanced studies in these fields.

The plan of instruction in the more advanced courses is quasi-tutorial with emphasis on highly diversified individual projects. These lie in the fields of special interest of the students: health education, administration, laboratory, epidemiology, sanitation, or statistics.

Again, because of the close coöperation and interest of the California State Department of Public Health, health officers and staffs of local public health units, medical record librarians and statisticians in private and public hospitals in the area, students are able to become acquainted with conditions in the field while attending the university. This is of great advantage to both students and faculty. The State Department of Public Health has provided apprenticeships in public health statistics which have been open to graduating majors for a number of years. Competent students are recommended for these apprenticeships. They are given

permission to work under supervision in local health units as well as in the various Bureaus of the State Department: Maternal and Child Health, Tuberculosis, Venereal Diseases, Acute Communicable Diseases, Records and Statistics, and the Division of Laboratories. State and local civil service examinations are given for various grades of positions in public health statistics, making possible opportunities for promotion. The grades are Junior Public Health Analyst, Senior Public Health Analyst, Associate Statistician, and Chief Statistician.

Special combination seminars of public health statistics and biometry are organized for graduate students (medical or non-medical) who have advanced standing in the School of Public Health and who are working for degrees. Weekly sessions are held for discussion of methods of public health statistics important to participating members of the seminar. Techniques of biometric analysis useful in elucidating laboratory and field studies and of particular value in epidemiological investigation are presented and demonstrated. Each student enrolled is obliged to pursue a project in public health of his own choosing, acceptable to the member of the staff with whom he works and in which statistical procedures and techniques will be applied. The wide range of subjects selected for special study is indicated in the following list:

Statistical evaluation of laboratory procedures with special reference to cost and time accounting

Demographic analysis of a county in California for purposes of determining need for and availability of public health and welfare services

Evaluation of methods for allocation of funds for public health program

Statistical evaluation of the efficacy of DDT in the control of an insect vector

Statistical study of preventive dental service and cost in a sample of institutionalized children

Statistical study of bacteriological types with reference to the epidemiology of a specific infection

If a properly qualified graduate student wishes to pursue studies in mathematical statistics concurrently with research in a field in which biometry is used, it is possible to arrange a coördinated program in the School of Public Health and the Statistical Division of the Department of Mathematics of the University.

Special courses have been developed for groups participating in in-service training. The techniques of public health statistics which apply to the special field of activity for which those in attendance are being trained, are selected for instruction. However, whether the students are sanitarians, Naval sanitation officers, health educators from Latin American countries, or deputy local registrars—lectures, assignments and discussions present and emphasize the importance of integration of special records with those of other services in public health.

In the summer of 1938 the first short in-service training course for local deputy registrars of vital statistics was organized. It has been repeated four times. Through the sponsorship of the State Department of Public Health, funds from Social Security were made available to defray the expenses of instruction and the travel and living allowances of the students. Approximately one hundred local deputy registrars from organized county health units and sixteen from city health departments in California enrolled and completed the courses. Although there was great variation in educational background, experience, and responsibility of position among these special students, their interest, effort, and enthusiasm unified the class to such an extent that these courses will be remembered as a very enjoyable teaching experience.

These employees of local health units are the custodians of important records

of great value to the individual as well as to the nation. The collection of basic data concerned with the beginning and end of life and the appraisal of their completeness and accuracy is the responsibility of local deputy registrars, many of whom have had little training for the positions which they hold, and practically no supervision while on the job. They have been criticised often because of their seeming lack of interest and their inability to keep routine procedures on a current basis. Many of the deputies had no realization of the part which they were contributing to state and local programs of public health. By the time the course ended, some were organizing manuals of procedures which would be useful in their own offices. Many who were working alone had very little guidance from the health officer; yet they were expected to perform all of the duties of a trained junior public health analyst. Some of the deputy registrars were unacquainted with the *California Health and Safety Code* which contains the laws under which they function. They were actually unaware of the legal requirements of procedures of birth and death registration on local, state, and federal levels. They had never heard of nor seen the *International List* and *Manual of Joint Causes of Death*. Residence correction of births and deaths was a new concept to them. Few knew the overall organization of the health departments in which they were employed and the relation of the local unit to the State Department.

The lack of knowledge of activities which have to do with registration and public health organization is not the responsibility of deputy local registrars but of public health administrators who have relegated the registration of vital data and reporting of disease to the position of clerical routine. Because of the increasing complexity of these procedures caused by legal provisions for delayed registration, adoption, and legitimation, local registrars and their deputies should be encouraged to keep abreast of the times. More interchange of ideas and information between local and state offices would assist integration of purpose and practice. Closer coöperation should be developed by local and state health authorities and the Division of Vital Statistics of the U. S. Bureau of the Census. In-service training in schools of public health may be the answer to this need.

In conclusion, it may be stated that the teaching of public health statistics and biometry over the past twenty-five years has been mentally stimulating to members of the staff of the university so engaged. The development of public health has been so rapid, the changes in approach have been so revolutionary, that numerical data and quantitative analysis have had to remain makeshift, at least to a certain extent. The broadening of the concept of public health to include activities of curative as well as preventive medicine is reflected in the uses which can be made of public health statistics.

Public health statistics is no longer a dull grind of figures, but a method by which some of the problems of our living can be meaningfully investigated in order that methods of prevention and amelioration can be tested and initiated. The social significance of public health, the need for better understanding of populations, and the desirability for integration of all public social services have caught the eye and imagination of western youth. Many are serving in local, state, federal, and voluntary health agencies as public health statisticians. There remain many opportunities for others to serve. With a broad educational background, adequate vocational training, and the will to accomplish in spite of seemingly insurmountable obstacles, youth has the chance of a lifetime.

Use of a Potassium Tellurite Medium in the Detection of *Corynebacterium diphtheriae*

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IN some cities in the United States, diphtheria is not at present considered a major problem, and in their laboratories the throat culture positive for *Corynebacterium diphtheriae* has become a rarity. Some of these municipalities have been successful in the enforcement of mass immunization. However, there still remain many areas in which diphtheria bacilli continue to thrive. In 1944 15,323 cases of diphtheria were reported in the United States.[1] An increase in the number and mortality of diphtheria cases for 1945 may be attributed in part to the migrational shift in population from isolated, small communities into the larger cities where war industries were located. Crowded, undesirable living conditions are conducive to the spread of *C. diphtheriae*. With the end of the war another shift in population is being experienced. The possibility that returning troops from Europe may bring with them strains of the more virulent forms of diphtheria bacilli that are prevalent in Northern Europe is a potential threat. In view of these conditions, diphtheria is still a problem that warrants attention.

Since Conradi and Troch[2] in 1912 first used tellurite in a selective serum medium for the isolation of *C. diphtheriae*, many media employing potassium tellurite have been introduced and used for the isolation and the detection of diphtheria bacilli. Because these media are extremely numerous and the better ones well known, they will not be enumerated. There was a tendency on the part of early workers[3-5] to emphasize tellurite media as valuable for isolation and typing purposes. Loeffler's coagulated serum medium, however, continued to be used for detection. In recent years a number of independent investigators[6-21] have established the greater accuracy of the tellurite media in the detection of *C. diphtheriae*. The direct inoculation of the tellurite media from the nose and throat swabs and not as a subculture from Loeffler's medium was found by many to give good results and to facilitate speed in reporting. The microscopic examination of tellurite slants when employed proved less satisfactory than the use of the tellurite plate. Young[15] in examining 1,045 swabs in parallel on Loeffler's slants and tellurite agar plates, found 150 positives, of which 149 were positive on the tellurite and 74 on the Loeffler's media. Wright[16] urged the use of a tellurite plating medium for the elimination of the false results obtained microscopically on Loeffler's—false negatives due to overgrowth by other organisms or to the failure of *C. diphtheriae* to develop typical morphology, and false positives due to confusion with diphtheroids. Cruickshank[17] reported that in the diagnosis of diphtheria Loeffler's medium misses about 10–30 per cent

of positive cultures and that the tellurite medium confirms diphtheria infection in 95–98 per cent of cases. Knox [18] found that tellurite medium gives about twice as many positive results as Loeffler's serum medium in examining swabs from convalescents and contacts.

Most of the investigations cited were conducted by English and Australian bacteriologists. Little mention can be found in American journals of the use of tellurite media for the detection of *C. diphtheriae*. Frobisher and Van Volkenburgh [19] and Frobisher [20] made note of the isolation of diphtheria bacilli from a considerable number of throat cultures which on microscopic examination had revealed only diphtheroids or other unrelated organisms. In one survey by plating out morphologically doubtful and negative Loeffler cultures on tellurite medium, over 3 times as many carriers were found as would have been the case had this procedure not been used. Perry and Petran [21] reported the value of a tellurite medium for the accurate and dependable identification of *C. diphtheriae* in routine laboratory examinations.

PRESENT USE OF TELLURITE MEDIA IN THE UNITED STATES

Because information was desired as to what extent potassium tellurite media are being used in the United States, a questionnaire upon procedures followed in the detection and isolation of *C. diphtheriae* was submitted to the 48 state public health laboratories. It was assumed that their methods would be followed by other public health laboratories within the respective states and that the data obtained in this manner would give an indication of the methods in general use throughout the United States. In addition the questionnaire was sent to a number of municipal public health laboratories. Forty-five state and 21 municipal public health laboratories returned the questionnaire.

Of this group of 66 laboratories, 4 use a tellurite medium routinely for the detection of *C. diphtheriae*. Two of these inoculate a tellurite plate directly from swabs; 1 microscopically examines potassium tellurite slants, streaking the positive cultures to tellurite plates; and the other inoculates tellurite plates from both swabs and potassium tellurite slants. Thirty-five laboratories, after microscopic detection of *C. diphtheriae* on Loeffler's medium, subculture from this medium to a tellurite plate for isolation for virulence tests or to check atypical cultures. Twenty-six laboratories do not use tellurite media at all, and 1 laboratory, in considering its use, is trying different kinds of tellurite media. The types of media in use by the laboratories mentioned are as follows:

Difco [22] tellurite medium	16
Douglas [2] serum tellurite medium or Gilbert [23] modification	9
Frobisher [19] cystine tellurite medium	6
McLeod [3] chocolate tellurite medium or modification	6
Hall [24] tellurite medium	3
A blood tellurite medium incompletely described	1

PURPOSE AND PROCEDURE

The superiority of a potassium tellurite medium over Loeffler's in the detection of diphtheria bacilli is established, but because tellurite media are so little used for this purpose in the United States, the findings of this laboratory are presented as a stimulus to their wider employment.

The present study had its inception in the case of J. K., age 15, which instigated changes in the procedures used for the detection of *C. diphtheriae* in this laboratory. J. K. became known through the routine examination of contacts to diphtheria cases. He had spent the night in the home of his sister, sleeping with his nephew who later developed diphtheria and died. J. K. spent his after-school hours selling

ice cream in a local confectionery.

The laboratory examination of J. K. followed a routine prescribed for contacts of diphtheria patients. A nose and a throat swab were inoculated upon a Loeffler slant which was incubated for 18 hours. A smear of this culture, stained with Loeffler's alkaline methylene blue, revealed no typical diphtheria-like organisms among the numerous staphylococci and other throat flora. As the policy of the laboratory provided that only Loeffler cultures found doubtful or positive for *C. diphtheriae* were to be streaked to a potassium tellurite plate for isolation, it was through an error that J. K.'s culture was inoculated upon this medium. However, the tellurite plate showed many typical diphtheria colonies which, upon being transferred to Loeffler's medium in pure culture, were tinctorially and morphologically typical of *C. diphtheriae*. An intradermal virulence test upon a rabbit gave a strongly positive reaction. An investigation of the other members of the boy's family revealed a brother who was also carrying diphtheria bacilli in his throat.

The experience of having so nearly missed these diphtheria carriers, one of whom was believed to be responsible for a death and who was in a position to spread *C. diphtheriae* to many other individuals, raised the question: How many diphtheria carriers are being missed by the use of Loeffler's as a screening or preliminary medium?

In an effort to determine the answer, this laboratory commenced to use a potassium tellurite medium routinely in addition to Loeffler's for the the detection of diphtheria bacilli. Difco's dehydrated Loeffler's blood serum was used, sterilized according to directions in *Diagnostic Procedures and Reagents*.[25] The potassium tellurite medium was a heated, 7 per cent blood agar with a concentration of 0.04 per cent of potassium tellurite. This medium, which was the same as had been used for isolation purposes, was prepared as follows:

Difco's Dextrose proteose No. 3 agar	4.2 gm.
Distilled water	100 ml.
Sterilize in the autoclave at 15 lb. pressure for 20 min.	
Cool to 75° C. and add aseptically 5 ml. of a sterile 0.8 per cent aqueous potassium tellurite solution (sterilized in the autoclave at 15 lb. pressure for 20 min.).	
Fresh rabbit blood	7 ml.
Heat medium for 10 to 15 min. at 75° C. and then cool before pouring plates.	

Ninety-eight per cent of the cultures examined in this laboratory come from convalescents and their contacts. Loeffler slants inoculated with a nose and a throat swab in the home of the patient are brought to the laboratory by the quarantine nurse. Heretofore the swabs had been discarded, but the use of potassium tellurite medium routinely necessitated that the swabs be left in the culture tube. Upon arrival at the laboratory they were streaked upon half of a potassium tellurite plate. No attempt was made to keep separate the nose and the throat swab either on the Loeffler's or the tellurite media.

RESULTS

A comparison was made of Loeffler's and potassium tellurite media used in parallel in the detection of *C. diphtheriae* in 622 nose and throat swabs from convalescents and contacts.

The microscopic examination of the Loeffler's medium after 18 hours of incubation at 37° C. was made by 4 individuals in the first series of swabs (Table 1) to minimize personal error. Each observer formed and recorded his impressions independently of the others. It is believed that the four examiners were as well qualified, by training and

TABLE 1

Comparison of Loeffler's Medium and Tellurite Blood Agar in the Examination of 302 Nose and Throat Swabs

Examiner	L*− T*−	L+ T+	L− T+	Per cent False Negatives	L+ T−	Per cent False Positives (Assumed)
A	176	47	53	17	26	8
B	174	44	56	18	28	8
C	161	53	47	15	41	12
D	181	55	45	14	21	6

* L = Loeffler; T = tellurite

experience, for recognizing diphtheria bacilli as the average technical worker in a public health laboratory. Unless otherwise indicated, no additional attempt was made to subculture on tellurite medium the organisms identified as *C. diphtheriae* by microscopic examination of Loeffler's medium, since the same swabs were used to inoculate the tellurite and Loeffler's media.

The examination of the tellurite plates inoculated directly from the swabs was made by one person, Examiner D. Each of the 100 positive cultures obtained upon tellurite medium in the first group of 302 swabs (Table 1) was isolated in a pure culture, examined for typical morphology on Loeffler's medium, and checked for the sugar fermentation reactions. All strains identified as *C. diphtheriae* fermented dextrose and not sucrose. An intradermal virulence test was performed on all positive cultures except that the test was not done on repeated cultures of the same individual unless requested or unless a period of six weeks had elapsed since the first virulence test. When a large number of tests were being performed, a rabbit was used, otherwise a guinea pig served as the test animal. Ten of the 100 positive cultures were found to be avirulent.

An analysis of the discrepancies between the two media was not carried out completely. In the first series of swabs examined (Table 1), none of the negative Loeffler cultures that were positive on the corresponding tellurite plate was streaked to the latter media to determine if diphtheria bacilli could have been isolated from the Loeffler culture. Many of the cultures recorded as positive on Loeffler slants, but negative on the swab-inoculated tellurite plate, were observed to yield almost pure cultures of a diphtheroid. It was assumed that in these instances the readings on Loeffler's medium were false positives caused by the similarity in morphology of diptheroids and *C. diphtheriae*. This is a very common error. As often occurs, there was little agreement among the four examiners in naming these assumed false positives. Of the 78 positives on Loeffler's that could not be confirmed on the tellurite, 50 were called positive by only 1 examiner, 19 by 2, 8 by 3, and 1 by all 4. It is believed that the latter was *C. diphtheriae* because of its very characteristic morphology and because it was from a patient whose culture had previously been positive on Loeffler's and tellurite media. In this case an unsuccessful attempt was made to isolate the organism by streaking from the positive Loeffler slant to blood agar and tellurite medium. No attempt was made to determine whether the other unconfirmed positives were strains that were inhibited on the tellurite medium [26, 27] or were merely the result of mistaken identity on the part of the examiner. It is considered significant

TABLE 2

Variability in Results Obtained in the Examination of Loeffler's Medium of 10 Cultures Found Positive for C. diphtheriae on Tellurite Medium

	Culture Number									
Examiner	1	2	3	4	5	6	7	8	9	10
A	+	−	−	+	−	−	+	−	−	+
B	+	−	−	+	−	+	−	+	−	−
C	−	−	+	+	+	−	−	+	−	−
D	−	+	−	+	+	−	+	−	−	−

that, of the 78 positives on Loeffler's that were unconfirmed by tellurite, 58 were from contacts with no clinical evidence of illness, and 11 were from convalescents whose cultures were never found positive on tellurite medium, while 9 were from convalescents whose previous cultures had been positive on tellurite.

when streaked from the Loeffler slant, and it came from a convalescent whose previous cultures had been positive on tellurite medium. As all swabs were first rubbed on the Loeffler slants and then on the tellurite plates, the failure of growth in this instance is attributed to the very small number of organisms present on the swab. From the other

TABLE 3

Comparison of Loeffler's Medium and Tellurite Blood Agar in the Examination of 320 Nose and Throat Swabs

Examiner	L*− T*−	L+ T+	L− T+	Per cent False Negatives	L+ T−	Per cent False Positives
D	182	60	62	19	16	5

* See footnote to Table 1

In the second series, 320 swabs were examined, the comparison of the two media being made by one individual, Examiner D. The results are shown in Table 3. The same procedure was used as in the first group except that an attempt was made, on all cultures microscopically positive on Loeffler's and negative on tellurite, to isolate the organism by streaking from the positive Loeffler slant to blood agar and tellurite medium in order to determine definitely if the microscopic readings were false positives or the failures on tellurite instances in which *C. diphtheriae* was inhibited by the selective tellurite medium. Of the 16 cultures microscopically positive on Loeffler's but not confirmed on the tellurite plate, diphtheria bacilli were isolated from only 1 culture. However, this was not a strain of diphtheria inhibited by tellurite because it grew readily on this medium

15 unconfirmed positives a diphtheroid was isolated in each case that could have caused the examiner to report diphtheria-like organisms present. Dextrose and sucrose were both fermented by 8 of the diphtheroids, and the other 7 fermented neither. Of the 123 strains of *C. diphtheriae* isolated in the second series of swabs, all fermented dextrose and not sucrose, and 4 were found avirulent.

DISCUSSION

For over 50 years Loeffler's serum medium has rendered service in the detection of diphtheria bacilli. It is still considered sufficient in many laboratories, yet it has disadvantages especially in dealing with contacts and carriers. The failure of the Loeffler medium in detecting *C. diphtheriae* in many nose and throat swabs may be attributed to several causes.

First, the use of Loeffler's medium is an attempt to identify *C. diphtheriae* solely on the basis of morphology, and for this reason it must necessarily be unreliable and inaccurate in many instances. The identification of diphtheria bacilli on the basis of morphology alone remains only an individual's opinion unless verified by other methods. The use of a tellurite medium is valuable if for not other reason than that it relieves the perplexity of the examiner in trying to decide whether certain diphtheria-like organisms under the microscope are really diphtheria bacilli or not.

Second, even if the diphtheria bacilli are typical in appearance, due to the small numbers often present in swabs from convalescents and carriers difficulty is experienced in finding them among other bacteria that grow abundantly and uninhibited upon Loeffler's medium. It is often impossible to find and identify small numbers of *C. diphtheriae* among numerous diphtheroids.

Third, there is the occasional difficulty that when other organisms, such as a sporing aerobe, reduce the surface of the Loeffler culture to a fluid, the conditions may not be favorable for the growth of the diphtheria organism.

Fourth, in our studies it was sometimes observed that although the Loeffler culture was found negative, the number of colonies of *C. diphtheriae* on the tellurite plate was enormous and the explanation that the organisms could have been so few as to be missed by microscopic examination is not tenable. A similar view has been expressed by others,[20, 21, 28] some of whom have stated that unless Loeffler's medium is very carefully prepared with particular attention to temperature, time, and pressure during sterilization, the morphology of some strains of *C. diphtheriae* may be so greatly altered as to make them unrecognizable. It seems not unlikely that these morphological variations occur regardless of the usual methods of preparing the medium.

Loeffler's medium, however, has one very great advantage—speed of growth. This is the one disadvantage of potassium tellurite medium as used for detection and isolation purposes. A few strains of diphtheria bacilli form recognizable colonies on tellurite media in 18 hours but most develop more slowly, requiring 24 to 48 hours. It is unsafe to report negatively the result of a potassium tellurite plate culture in less than 48 hours. Since cell morphology often is not typical upon the tellurite medium, it is usually necessary to transfer a colony to a Loeffler slant to examine for typical morphology; however, by one experienced in the use of tellurite media *C. diphtheriae* can generally be readily identified by colony characteristics. Loeffler's serum medium, although it misses some positives, usually gives a positive result within 18 hours in the majority of acute clinical cases. For this reason, in all cases for diagnosis and where there is urgency, Loeffler's medium should be used. However, public health laboratories generally receive more nose and throat cultures for the release of canvalescents and the detection of carriers among contacts than for diagnosis. It is in the examination of such cultures that tellurite medium has proved so superior over Loeffler's medium, and it is believed that the delay of a day or two in reporting is an insignificant matter compared to the marked increase in numbers of positive results obtained.

No attempt is made here to compare or evaluate the merits of the different kinds of tellurite media. Some undoubtedly give better results than others. The data in Knox's report [18] showing that tellurite media give about twice as many positive results as Loeffler's serum medium were compiled from the findings of a number of labo-

ratories using different kinds of tellurite media. It is believed that any type of tellurite plating medium is better than none at all.

SUMMARY AND CONCLUSION

The comparative use of Loeffler's serum medium and potassium tellurite blood agar in the detection of *C. diphtheriae* from 622 nose and throat swabs from convalescents and contacts yielded 222 positives on the tellurite medium, of which 113 were also observed on Loeffler's. Of 36 cultures microscopically positive on Loeffler's medium but not confirmed on tellurite, *C. diphtheriae* was proved to be present in 1 culture; diphtheroids were isolated from 15; and the others were not completely investigated.

In view of the results obtained in this laboratory and those of others cited, the use of a potassium tellurite plating medium in the detection of *C. diphtheriae* is considered a much more exact laboratory procedure than the use of Loeffler's serum medium for microscopic examination.

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Realignment of Public Health Nursing Services

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WAR emergencies called for a new emphasis on coöperative effort in social planning. The formation of the American War-Community Services was a step in this direction because it provided national machinery for joint planning. This agency, a joint project of six national health and welfare agencies * was organized to help solve unprecedented problems facing local areas during a period of crises, and, through consultation, to assist these communities in developing new services or in strengthening existing ones. AWCS has been financed by contributions from community chests in many cities and has on its Board of Directors representatives of labor, industry, community war chests, and national health and social work agencies. The Service Cooperation Committee, one of the standing committees of AWCS, serves as a medium for coöperative planning. Its membership is made up of representatives from each of the participating groups and other national agencies who have expressed an interest. This is a new experiment for national voluntary agencies and AWCS plans to put special emphasis on improving methods of cooperative planning during the coming year. It should encourage public health agencies to intensify efforts toward more unified action.

* National Board, Young Women's Christian Association; National Urban League; National Chi'd Welfare Association of America; National Organization for Public Health Nursing; National Family Welfare Association; American Federation of International Institutes.

The National Organization for Public Health Nursing has long been concerned about the inadequacy of nursing services for the care of the sick in their homes. Early in the war, health needs in war-congested areas convinced the Board of Directors that the expansion of this phase of public health nursing should be a war project. Membership in AWCS afforded opportunity to develop this project. To date assistance has been given to approximately fifty-three communities in developing new services or strengthening existent ones. The program has confirmed the belief that this type of service is needed and has again pointed up the need for greater coördination in community health services.

OBSERVATIONS DURING FIELD SERVICE

As members of the field staff of the NOPHN-AWCS we have had opportunity to gain firsthand acquaintance with local public health nursing situation and community-wide knowledge of available services. In the communities where we have done intensive work, we have learned what the general public thinks about public health nursing.

Certain basic principles in community planning were inherent in the general plan that we followed:

1. Field visits were made only in response to requests from war communities.
2. The development of new programs or expansion of existing ones was considered in relation to the total community picture.
3. Services for the care of the sick in their homes were considered in relation to all public

health nursing needs and resources. A special Nursing Advisory Committee with representatives from National public health nursing agencies was organized at the time the NOPHN-AWCS program started and further strengthened coöperative effort.

4. Intensive service was given only when there was assurance that a representative community group would sponsor the activity. Therefore, in every community our study and planning proceeded in coöperation with local lay and professional groups.

5. The rendering of public health nursing in any one area by as few agencies as possible was encouraged.

6. The official public health agency, legally responsible for the health of the community, was considered the logical and more desirable unit around which to center program planning.

Our experience in communities shows there is ready response from both professional and general citizens to a discussion and interpretation of public health nursing functions and programs. However, we found that the majority of people know too little about the public health nurse. Too often they see her as a nurse who performs only a few activities such as weighing babies at the clinic and quarantining for communicable disease. Usually they associate her services with the very poor.

We found lay persons giving generously of their time, effort, and money to the particular agency with which they are affiliated. Personal contact with these community leaders convinced us that they are sincerely interested. But often they are limited in their concept of community-wide public health nursing services because broad objectives have never been presented to them. They are asked to spend their time on simple and not too interesting activities which require no intelligence and no knowledge of field service. It is not surprising that interest, support, and understanding of public health nursing services by volunteer groups and citizens' committees has not been sustained. The degree to which they possess a comprehensive understanding of the subject is in proportion to the extent professional public health people have permitted them to share responsibility for program planning and administrative problems.

We also observed that many professional workers of local agencies are not sufficiently informed about the programs of other agencies, common areas of endeavor, and the relationship of one to the other. Professional workers in most branches of public health nursing center program-planning around the family. "Health in the Family Is Health for the Community" is a commonly quoted phrase. And yet, these same hard workers give only lip service to the idea of coördinated effort and reorganizations, and defend the status quo of their own agency. Further discussion with these people revealed that they sincerely believe that a broad recommendation about the desirability of generalizing public health nursing services is not applicable to their specialized services or their local community.. "In our organization" or "in this community" are phrases commonly used to introduce a description of a local situation believed by them to be atypical, and yet in reality common to so many areas that it forms a basis for guiding principles on a national level.

Perhaps this reaction has too often been ignored or tossed aside with, "It's the old story, people are more concerned with their own positions than with community needs." We question whether this criticism is fair and whether more regard for the attitudes of all faithful public health workers would not ultimately result in greater progress toward coördinated services. We found that nurses engaged in specialized services believe that the importance of their work and the specialized skills required to do it have been overlooked by those making recommendations. They seem fearful that the service they have helped to build will be lost in a generalized pro-

gram. Too little understanding of what the nurse does in a generalized service has led others to be unnecessarily fearful of the new responsibilities involved. It is recognized that this more detailed interpretation will take valuable time of qualified leaders. However, we believe it is a "must," if successful reorganization of community services is to come about.

Community planning during the war has brought numerous benefits to the public health nursing field. Citizen groups eager to participate in the war effort have perhaps for the first time become interested in all community services including public health nursing. Professional persons have found new opportunities to interpret health services to the community. Agencies have examined their programs in the light of urgent health needs. Citizens have become far more aware of their individual needs, the lacks in existing services, and potentialities for improved resources in community planning. As a result, this immediate post-war period is an opportune time for professional leaders to point the way toward more economical planning with higher quality of service.

AIDS TO PLANNING

Pertinent guides and broad recommendations as to standards of service have been provided by our national public health organizations. The fact that these guides and recommendations have had successful application indicates that they are practical and sound. The Subcommittee on Local Health Units of the American Public Health Association has outlined a comprehensive plan for development of local health units for the nation.[1] We can expect this study to hasten the day when every area in the country will have adequate health services. In the meantime, local communities will find in the committee's report helpful suggestions for revising their own community programs and filling unmet needs.

Further direction for communities is available through reports of studies made by the NOPHN. A useful guide for communities to follow in analyzing their own situations and planning to meet them can be found in *Public Health Nursing Care of the Sick*, published in 1942.[2] This report describes communities of varying characteristics, summarizes recommendations common to many of them, and includes patterns of organization which have proved practical and effective. Helpful descriptions of actual pioneering in setting up generalized nursing services within city and county areas have been given to us by the City of Seattle,[3] and by Kitsap County[4] in the State of Washington.

FACTORS IN COÖRDINATION

Both citizen and professional groups today are showing a great deal of interest in working toward improved public health nursing services for their communities. However, progress toward improved planning is slow in spite of current interest and these numerous guides. On the basis of our recent experience we believe more thought needs to be given to coöperative effort; the ultimate goal of all public health nursing; the part citizen groups may play and the methods which have been successfully tried.

Coöperative planning is a first essential in any community-wide project. Progress depends upon the joint effort of all nursing groups, health officers, professional workers in related agencies, and lay members of the community. This joint effort should promote common knowledge and understanding of existing needs, and arouse interest in providing resources to meet them. Too much emphasis cannot be put upon the decisive rôle which may be taken by representative citizens. Their views are

of the greatest significance in shaping the thought that effects a successful solution.

Another important factor to consider in advancement of public health nursing services is the *contact with individual physicians.* Observation suggests that many members of the medical profession continue to have a vague understanding of the work of the public health nurse and little acquaintance with the policies of their own public health nursing organizations. The individual public health nurse must increase her efforts and utilize every opportunity to interpret her services to the private physician. Too few medical advisory committees are routinely and consistently used for consultation on policies and procedures considered to be within their jurisdiction or for help in interpreting public health nursing to the local medical group.

What is the common goal of all public health nursing? If it is *to provide the highest possible level of nursing service for everyone in the community in adequate amounts and at a cost which they can afford,* then all present services must be evaluated in the light of essential community needs. The goal calls for a community health plan which is economical and effective. It requires that public health nursing programs be flexible to meet changing community needs as determined by vital statistics, morbidity rates, and emergency situations. It means reducing or completely eliminating some services to make way for others that today rank higher in order of importance. Efforts toward attainment of this goal have met with success where public health leaders have been fundamentally concerned with broad objectives and have made practical application of the democratic process.

STEPS IN COÖRDINATION

An initial step in the realignment of community health services is *to organize a planning committee* representing a cross-section of community groups. In selecting members, various religious groups, parent-teachers associations, labor organizations, women's clubs, chambers of commerce, and other health and welfare agencies should be considered. Community nursing councils and health committees of the councils of social agencies provide an effective medium through which to direct efforts of joint study and planning. The value derived from councils depends upon the degree to which public health personnel appreciate the potentialities inherent in these organizations for strengthening community services. The National Joint Committee on Community Nursing Service has recently prepared a guide [5] which should help to promote the establishment of nursing councils in local communities. Concerted effort should be made to have nursing councils organized where they do not already exist.

The responsibility of planning committees will be to study community facilities and present-day standards in public health nursing and to assume leadership for the development of a better program.[6] When a decision on some form of coördinated service and plan of financial support has been reached, a well qualified nurse director should be selected as early as possible. She can help with further planning and continuous interpretation throughout the community. The planning committee will need to be well informed about the various agencies in the community, their objectives, functions, programs, accomplishments, and also something of their philosophy and working relationships with other agencies. It is especially important that public health workers already functioning in the community be kept informed of the committee's plan, as changes or reorganization may affect them as individuals or their agencies.

After the committee has made careful analyses of the community situations and professional workers and the general public have become acquainted, many valuable and pertinent suggestions for reorganization can be expected to come from all groups. It is of the utmost importance that the person guiding the committee offer for consideration plans of organization in comparable communities which have been found through experience to be economical and effective. There are three possibilities: (1) the department of health may assume responsibility for a completely generalized nursing service including bedside care; (2) official and voluntary agencies may be completely independent, but coöperate, and coördinate their various services, and (3) various combination plans of the foregoing may be evolved.

We believe whole heartedly in a generalized and unified service, but are convinced that great care should be taken not to attempt complete generalization before agencies and communities are ready for it. In some communities it would be more practical to work gradually toward a degree of generalization. A simple step in the direction of complete generalization is a plan which provides one nurse director but separate governing boards, funds and field staff for all the services involved. Such a plan has been acceptable where it has been necessary to set up new services for nursing care of the sick, and where the department of health has not been ready to assume this additional responsibility.[7] This type of plan promotes better nursing leadership, greater coördination, and a higher quality of service at less cost through common administrative procedure than does the continuance of separate nurse direction.

The war emergency tested the effectiveness of national and local health and welfare services. It revealed overlapping and duplication in the face of serious omissions. It demonstrated what can be done when common effort and interests are merged and directed toward a common goal. Now it is up to those concerned with community health to discard outmoded, ineffective patterns, to harness the sources of community strengths revealed by the war, and to inject into today's activities the fundamental principles of social planning. Out of this coördinated program, we may expect even more effective methods of service to evolve.

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Venereal Diseases Found in Selective Service Registrants[1]

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EXAMINATIONS by Selective Service of more than 15 million registrants since November, 1940, reveal that an estimated 5 per cent have some form of venereal disease at the time of physical examination. The estimated prevalence for white registrants is 2 per cent, while the prevalence among Negroes is 22 per cent. Among Negroes, venereal diseases are the second most frequent cause for rejection.

The awareness of public health officials and top ranking officers of the armed forces to the possible utilization of registrants with a venereal disease resulted in reducing the rejections caused by this particular group of defects, until all but the most complicated cases were acceptable for induction and treatment in the armed forces, pending such time as they became fit for regular duty.

The standards of acceptance which were in effect at the time the Selective Service System began to examine registrants provided for the rejection of registrants with venereal diseases.[2] It is understandable that the peacetime Army had neither the treatment facilities nor the desire to induct men with a venereal disease. The coming of war, however, created an urgent need for an expanded Army and Navy. As a result, registrants who presented evidence of having received adequate treatment for syphilis, in accordance with acceptable Army standards, were inducted for general military service. At this time registrants with uncomplicated gonorrhea were not acceptable for general military service, but were acceptable for limited military service, but no limited service men were being inducted.[3] The criteria set up to define "adequate treatment for syphilis" were so rigid that not many registrants having syphilis could meet them; therefore, very few men were inducted under this procedure.

A second change in the standards of acceptance in the fall of 1942 permitted the induction of registrants with uncomplicated gonorrhea to the extent of 2 per cent of registrants reporting for induction.[4] Syphilitic cases were acceptable to the extent that treatment facilities were available. However, registrants with cardiovascular, cerebrospinal, or visceral syphilis were never acceptable.[5] Treatment facilities for handling syphilitic cases still were inadequate, and inductions were not permitted under this provision until new instructions for induction to the limit of available facilities were issued in December, 1942; however, it was March, 1943, before large numbers of syphilitics could be inducted.[6] At that time, a great backlog of rejected syphilitic registrants had accumulated which never was fully absorbed through induction. The high incidence of syphilis among Negroes created a particular problem with regard to absorbing the backlog of rejections among registrants

TABLE 1

Estimated Number of Selective Service Registrants Ages 18–37 in Rejected Classes Because of Syphilis, Gonorrhea, and Other Venereal Diseases,[1] January 1, 1945

Principal Cause for Rejection	Number			Per cent		
	Total	White [2]	Negro	Total	White [2]	Negro
Total	4,493,000	3,621,000	872,000	100.0	100.0	100.0
Syphilis	271,100	107,900	163,200	6.0	3.0	18.7
Gonorrhea and other venereal diseases	18,400	7,300	11,100	0.4	0.2	1.3

[1] Includes those in Class IV-F and also those transferred from Class IV-F to the occupationally deferred classes, II-A(F) II-B(F), and II-C(F).
[2] Includes all races other than Negro.

of that race. In May, 1943, the Navy, which prior to this time had not accepted registrants with venereal diseases, began to accept those with acute uncomplicated gonorrhea and those with adequately treated syphilis.[7]

NUMBER CURRENTLY REJECTED

On January 1, 1945, an estimated 271,000, or 6.0 per cent, of the 4,493,000 registrants ages 18–37 in the rejected classes were so classified because of syphilis (Table 1). An additional 18,400, or 0.4 per cent, of rejected registrants were classified thus because of other venereal diseases, which include gonorrhea, chancroid, granuloma inguinale, and lymphogranuloma venereum (active). These figures do not include the thousands rejected for venereal diseases at one time or another who later were reëxamined and inducted.

BLOOD TESTING

The universal blood testing of registrants examined by the Selective Service System set up a milestone in the control of venereal disease. The result was a widespread interest and an effort among the general population to secure serological tests. It also was a valuable aid in supplying accurate data with respect to the prevalence of syphilis among a large part of the male population of the country.

Analyses of the results of serological tests made during the period from November, 1940, through August, 1941, indicate that 46.1 registrants out of every 1,000 examined had a positive or a doubtful test for syphilis.[8] Approximately three million men 21–35 years of age were examined during that period.

The prevalence of syphilis was 18.6 per 1,000 examinations among white registrants and 245.2 among Negroes, or about 13 times the rate for white registrants. It is possible, however, that the prevalence was increased to some extent by the inclusion of doubtful and confirmatory tests in the data. Testing procedures required all positive or doubtful tests to be confirmed by a second test to determine whether the test was truly positive or truly negative.

The prevalence of syphilis increased with advancing age between the ages of 21 and 36; the rate being 30.1 per 1,000 examinations for registrants 18–25, and 83.5 for registrants 31–35 years of age (Table 2). Registrants under 21 and over 35 years of age represented volunteers, during peacetime, and the prevalence of 55.1 per 1,000 examinations for men under 21 years of age and the rate of 101.9 probably are not truly representative of all men in these age groups. The prevalence among Negroes compared to that of white registrants varied from approximately 19 times the white rate

TABLE 2

Comparison of Syphilis Detected Rates by Race and Age in First and Second Million Selectee Blood Tests per 1,000 Examined,[1] November, 1940–August, 1941

Age Groups in Years	Prevalence per 1,000 Examined		
	Total	White [2]	Negro
Total	46.1	18.6	245.2
18–20	55.1	12.3	105.8
21–25	30.1	10.8	191.7
26–30	54.4	22.1	294.8
31–35	83.5	39.9	357.8
36–40	101.9	47.4	375.6

[1] Results of Serological Blood Tests for Syphilis, U. S. Public Health Service: April, 1941, and October, 1942.
[2] Includes all races other than Negro.

in the age group 21–25 years to about 9 times the white rate among registrants 31–35 years of age.

REJECTION RATES

Rejection rates for syphilis increased during the first year of war over the peacetime rate, although rates for gonorrhea and other venereal diseases decreased. When the induction of registrants with syphilis actually began early in 1943, the rejection rate for this defect began to decrease and continued to do so until by 1945 it formed a negligible part of the white rejection rate. Syphilis continued to be responsible for an appreciable percentage of Negro rejections, although the syphilitic rejection rate for that race actually decreased at a more rapid rate than did that among white registrants. During peacetime, about 24 out of every 1,000 registrants examined were rejected for syphilis, and 7 for gonorrhea and other venereal diseases (Table 3). In 1942 (the first year of war), the rejection rate for syphilis increased to 37, while the rate for gonorrhea and other venereal diseases decreased to 4. The rejection rate for syphilis in 1943 was 15 per 1,000 men examined while all other venereal diseases were the cause of only one rejection per 1,000 men examined. In 1944, the rejection rate further decreased to 4 for syphilis and 0.3 for all other venereal diseases. The Negro rejection rates for both syphilis and other venereal diseases showed the same trend as did the rate for white registrants, but during each yearly period they were many times greater than the rate for white registrants.

The increase in the rejection rate for syphilis during the first year of war was the result of three factors: (1) standards of acceptance did not permit the induction of registrants with syphi-

TABLE 3

Estimated Rejection Rates for Syphilis and Other Venereal Diseases, by Race,[1] 1940–1944

Year	All Races	White [2]	Negro
		Syphilis	
1940–1941	24.2	8.3	147.2
1942	37.2	14.9	170.5
1943	15.0	6.5	61.7
1944	4.3	2.4	18.6
		Gonorrhea and Other Venereal Diseases	
1940–1941	6.7	2.5	40.6
1942	3.6	1.2	18.2
1943	1.3	0.5	6.0
1944	0.3	0.1	1.9

[1] Rate per 1,000 registrants examined.
[2] Includes all races other than Negro.

lis; (2) many men were being enlisted directly by armed forces' recruiting stations and thus removed from the group to be examined by the Selective Service System; and (3) lack of treatment facilities, even after standards of acceptance were amended, limited the number who could be accepted. The rejection rate for gonorrhea decreased since men with gonorrhea were inductible at an earlier date than were those with syphilis; also treatment over a relatively short period of time relieved the symptoms of gonorrhea, and registrants, regardless of a past history of infection, were almost universally accepted, provided there were no indications of the disease. Local health authorities made concerted efforts to treat known cases of gonorrhea which previously had been rejected, and local boards returned such registrants for induction as soon as was possible. Many registrants who were rejected for syphilis were placed under treatment by civilian health officials and thus had received a considerable amount of treatment prior to their induction into the armed forces. In many states cooperative programs existed between state health departments and Selective Service which were designed to place under treatment those registrants who were rejected for syphilis. These programs were established prior to the time that standards of acceptance in the armed forces were changed to permit the induction of syphilitics and were intended to fit these rejected registrants for induction under the rigid standards then in effect.

MAJOR SUB-GROUPS OF SYPHILIS

This section includes information on the prevalence of the various types of syphilis among examined registrants and the percentage of syphilis rejections caused by the various types of syphilis. The data on the prevalence of syphilis afford a more nearly complete picture of syphilis than do the data on rejections, since (1) many men with syphilis were inducted into the armed forces after early 1943, and (2) rejection data are based on the primary defect causing rejection, and many registrants with syphilis were rejected for some other more important defect.[9]

Data obtained from tabulating the results of mass serological tests for syphilis form the most nearly complete index available as to the prevalence of syphilis among men liable for military service. The specific diagnoses of the types of syphilis recorded in the summary of defects on the physical examination report afforded valuable information, both with respect to the possible utilization by the armed forces of syphilitics in military service and as a matter of interest from the public health standpoint. Since syphilis was not always listed in the summary of defects when a positive serological test was found, there is a difference between the prevalence (30.8 per 1,000 examined) as shown in Table 4, and the prevalence of positive serological tests (46.1 per 1,000 examined) as shown in the analysis of blood test reports. These two rates for Negroes are more nearly equal, indicating that syphilis was recorded more generally in the summary of defects for Negro registrants having a positive serological test than was true for white registrants.

The relative importance of the various venereal disease sub-groups, as shown in Table 4, indicates that "other syphilis," consisting mainly of entries describing doubtful serological tests or syphilis unspecified as to form, was the most frequently recorded type of syphilis during peacetime and it was followed in importance by recording of positive serology with no further clinical diagnosis. These two sub-groups comprised more than 97 per cent of all rejections for syphilis and a major proportion of the recorded prevalence. The signifi-

TABLE 4

Prevalence of Syphilis and Other Venereal Diseases and the Per cent Distribution of Rejections for Syphilis and Other Venereal Diseases Among Selective Service Registrants Examined at Local Boards, November, 1940–September, 1941

	Prevalence per 1,000 Examined			Per cent Distribution of Rejections		
Major Sub-Group	All Races	White [1]	Negro	All Races	White [1]	Negro
All Syphilis	30.8	11.7	176.7	100.0	100.0	100.0
Cerebrospinal	0.5	0.5	1.1	1.6	3.6	0.6
Cardiovascular	0.3	0.1	1.7	0.8	0.6	1.0
Other types of syphilis	15.7	6.4	86.9	51.3	55.7	49.1
Positive serology (No other findings)	14.3	4.7	87.0	46.3	40.1	49.3
All Other Venereal Diseases	7.3	3.4	36.5	100.0	100.0	100.0
Gonococcus infection	6.7	3.2	32.6	92.3	96.7	89.6
Other venereal diseases	0.6	0.2	3.9	7.7	3.3	10.4

[1] Includes all races other than Negro.

cance attached to the serological test in the diagnosis of syphilis often resulted in failure on the part of the examiner to record histories of infection. It is probable that a large percentage of the men found to have syphilis had not been previously examined or treated for the disease prior to the Selective Service examination. In some states, a check was made against the record of reported cases on file at the state health department, thus revealing a high percentage of cases that never had been reported previously.

During peacetime gonococcus infection comprised more than 92 per cent of rejections for venereal diseases other than syphilis (Table 4). The nature of gonorrhea and the examining procedure in itself made it almost impossible to diagnose all the cases. The absence of prolonged symptoms and the rapid " cure " which may be effected with modern drugs greatly reduced the number of registrants who had recognizable gonorrhea at the time of physical examination. Chancroid, granuloma inguinale, and lymphogranuloma venereum were found 20 times more often among Negroes than among whites and comprised 10 per cent of Negro rejections in contrast to only 3 per cent of white rejections for venereal diseases other than syphilis.

Positive serology remained the most frequently recorded basis for the diagnosis of syphilis during the war and even continued to be the most frequent cause for rejection among registrants rejected for syphilis, despite the fact

TABLE 5

Prevalence of Syphilis and Other Venereal Diseases and the Per cent Distribution of Rejections for Syphilis and Other Venereal Diseases Among Selective Service Registrants Physically Examined at Local Boards and Induction Stations, 1942–1943

	Prevalence per 1,000 Examined			Per cent Distribution of Rejections		
Major Sub-Group	All Races	White [1]	Negro	All Races	White [1]	Negro
All syphilis	50.2	20.8	214.7	100.0	100.0	100.0
Cerebrospinal	1.8	1.2	4.8	6.6	13.0	3.2
Cardiovascular	0.2	0.1	1.1	0.5	0.5	0.5
Other syphilis	15.8	6.8	65.9	24.0	23.9	24.1
Positive serology (no other findings)	32.4	12.7	142.9	68.9	62.6	72.2
All other venereal diseases	6.3	2.3	28.7	100.0	100.0	100.0
Gonococcus infection	5.9	2.2	26.6	90.3	96.4	87.9
Other venereal diseases	0.4	0.1	2.1	9.7	3.6	12.1

[1] Includes all races other than Negro.

that under the prescribed standards of acceptance it was no longer considered a cause for rejection after March, 1943 (Table 5). Positive serology and "other syphilis" accounted for more than 85 per cent of rejections for syphilis among white registrants, while among Negroes these types were responsible for over 96 per cent of syphilitic rejections. These percentages are lower than those reported for peacetime, which indicates the increased relative importance of complications of syphilis as causes for rejection after uncomplicated syphilis was removed as a cause for rejection.

The recorded prevalence of all types of syphilis increased over that for peacetime, with complicated types and positive serology showing the greatest gains for both white and Negro registrants. Part of the increased prevalence may have been the result of better recording of data on the physical examination report form.

Gonorrhea continued to be the cause for more than 90 per cent of rejections for venereal diseases other than syphilis, but the percentage decreased for Negroes during wartime, although it remained practically constant for white registrants. The prevalence of gonorrhea in wartime declined appreciably over that recorded during peacetime.

The trend in the types of syphilis causing rejection during the period of modification in standards of acceptance is presented in detail in Table 6. Positive serology was responsible for a decreasing proportion of syphilitic rejections after April, 1942. The decrease for whites was from 72 per cent in the period April-June, 1942, to 7 per cent in November-December, 1943, while the decrease among Negroes was from 78 per cent to 14 per cent during the same period. On the other hand, neurosyphilis increased in relative importance as a cause for rejection of white syphilitic registrants from 6 per cent in April-June, 1942, to 78 per cent in November-December, 1943, whereas the increase among Negroes was from 1 per cent to 61 per cent during the same period.

It is apparent that the decrease in the importance of rejections based on positive serology alone and the consequent increase in the importance of neurosyphilis did not occur as rapidly among Negro as among white registrants.

TABLE 6

Per cent Distribution of Types of Syphilis Among Selective Service Registrants Rejected at Local Boards and Induction Stations, April, 1942–December, 1943

Month of Receipt of Form 221	White[1]					Negro				
	Total	Neuro-syphilis	Cardio-vascular syphilis	Other	Positive Serology	Total	Neuro-syphilis	Cardio-vascular syphilis	Other	Positive Serology
April–June '42	100.0	5.6	0.6	21.9	71.9	100.0	0.7	0.2	21.5	77.6
Nov.–Dec. '42	100.0	4.5	0.1	25.5	69.9	100.0	0.9	0.2	26.6	72.3
Jan. '43	100.0	4.7	0.2	22.7	72.4	100.0	0.7	0.1	23.5	75.7
Feb. '43	100.0	8.4	0.2	28.2	63.2	100.0	0.6	0.3	29.1	70.0
Mar. '43	100.0	12.6	0.3	21.8	65.3	100.0	1.8	0.3	21.5	76.4
Apr.–May '43	100.0	27.6	0.7	30.1	41.6	100.0	5.3	0.7	21.5	72.5
June–July '43	100.0	53.2	1.2	18.5	27.1	100.0	11.7	1.6	17.5	69.2
Aug.–Sept. '43	100.0	64.1	2.0	17.7	16.2	100.0	23.9	2.8	23.8	49.5
Nov.–Dec. '43	100.0	77.5	4.0	11.3	7.2	100.0	61.1	12.4	12.8	13.7

[1] Includes all races other than Negro.

THE OCCUPATIONAL FACTOR

The relationship between syphilis as a cause for rejection and the occupation of the rejected registrant is shown in Table 7. Selective Service policies provide for the deferment of men in essential occupations, which has resulted in fewer men in certain occupational groups being examined than in others; therefore, the occupational groups vary in their representativeness. The farm group probably is the least representative of their group in the general population, as a result of the passage of the Tydings' Amendment in 1942 which provided for the deferment of agricultural workers. This has particular significance for the period shown in Table 7, since a sizable proportion of Negroes are farmers and the incidence of syphilis is very high among registrants of that race. Among white registrants, "other service workers" had the highest percentage of rejections due to syphilis, while domestic and protective service workers had the highest percentage among Negroes. Syphilis was a rather unimportant cause of rejection among farmers and farm laborers of both races. White professional and semiprofessional workers were infrequently rejected for syphilis, but among Negroes the rejection of this group for syphilis was relatively more important than among other occupational groups. Syphilis was the cause of a larger percentage of Negro rejections in every occupational group than among white registrants in the same occupational groups. Among Negro farmers and farm laborers, the percentage of rejections due to syphilis was so much at variance with that of Negroes in other occupational groups, that it appears probable that these percentages are not truly representative of Negro farmers. The fact that mental and educational deficiencies are very prevalent among farm Negroes undoubtedly detracts from the true importance of syphilis in this group.

TABLE 7

Per cent of Rejections in Major Occupational Groups Due to Syphilis, February, 1944–April, 1944

Occupation	*Per cent of Total Rejections Due to Syphilis*		
	Total	*White* [1]	*Negro*
All occupations	1.0	0.6	3.2
Professional and semiprofessional	0.4	0.3	3.6
Farmers and farm managers	0.3	0.2	0.6
Proprietors, managers and officials	0.5	0.4	3.5
Clerical, sales, and kindred	0.8	0.6	7.4
Craftsmen and foremen	1.0	0.7	5.3
Operatives	1.1	0.7	4.2
Domestic and protective service workers	1.2	0.5	8.5
Other service workers	2.8	0.8	5.3
Farm laborers	0.4	0.2	0.8
Laborers, except farm	1.5	0.6	2.7
Students	0.4	0.2	4.0
Emergency workers and unemployed	1.2	0.7	3.6
Nonclassifiable	1.3	0.7	3.8

[1] Includes all races other than Negro.

SUMMARY

A review of the prevalence of venereal diseases and the rejection rates for that cause among Selective Service registrants shows that:

1. The majority of rejections for syphilis were made on the basis of a positive serological blood test alone.

2. Syphilis was the principal cause for the rejection of 271,100, or 6.0 per cent of those registrants in rejected classes on January 1, 1945. As of the same date there were 18,400 registrants, or 0.4 per cent of all rejected

registrants, who had been rejected for gonorrhea and venereal diseases other than syphilis.

3. Approximately 5 per cent of the registrants were found to have a venereal disease at the time of physical examination.

4. The rejection rate for syphilis decreased from 24 per 1,000 examined in peacetime to 4 per 1,000 examined in 1944. The rejection rates for gonorrhea and other venereal diseases decreased from 7 to 0.3 per 1,000 registrants examined during this same period.

5. The decrease in the rejection rate was the result of changes in standards of acceptance which ultimately provided for the acceptance of registrants with all except complicated forms of venereal diseases.

6. Venereal diseases are reported more frequently among Negroes than among white registrants and the rejection rates also are consistently higher among Negro registrants.

7. The prevalence of syphilis increases with advancing age, although the ratio between the white and Negro prevalence rates decreases from a Negro rate which is 19 times the white rate in the age group 21–25 years to about 9 times the white rate among registrants 31–35 years of age.

8. Among white registrants gainfully employed, the percentage of rejections for syphilis was highest among "other service workers" and lowest among farmers and farm laborers and students, while among Negroes it was highest among domestic and protective service workers and lowest among farmers, farm managers, and farm laborers.

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2. *Mobilization Regulations No. 1–9*, August 31, 1940. War Department.

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8. Based on data obtained from the serological blood test reports of the first two million Selective Service examinations. Additional information on the results of serological tests for syphilis, by states, cities, and counties may be found in the two volumes: *Results of Serological Blood Tests for Syphilis on Selective Service Registrants* issued by the U. S. Public Health Service, April, 1941, and October, 1942.

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Afebrile Parasitemia in Imported Vivax Malaria

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THE possibility that military personnel returning from areas where malaria is hyperendemic, may introduce the disease into uninvolved areas of the United States and increase the incidence in presently endemic areas has been fully recognized by military and public health authorities.[1] The proven transmissibility of some imported strains of vivax malaria to American mosquitoes and by them to American soldiers [2] has indicated the wisdom and necessity of improving and extending mosquito control measures to prevent spread of the disease.[3] In spite of steps already taken, occasional secondary cases may be expected to develop; a few such cases have been reported.[4] It has been pointed out that since quinacrine is highly effective in ridding the blood of parasites, prompt diagnosis and treatment of the patient with a clinical attack will make him an unlikely source of infection of mosquitoes.[5] The question then arises as to the frequency of patients who without symptoms will have parasitemia with gametocytes and thus serve as a potential source of infection of mosquitoes.

The presence at Harmon General Hospital of a group of patients being studied for relapse, afforded an opportunity to obtain data bearing on this problem. For a period of 5 months approximately 200 patients who had had proven relapses in this hospital of vivax malaria of either Pacific or Mediterranean origin, had blood smears examined twice weekly for malarial parasites. Thick smears were always made in the morning and examined the same day. If parasites were found, the patient was immediately admitted to a ward for observation. Thick and thin smears were then taken at 12 or 24 hour intervals and the presence or absence of gametocytes noted. Oral temperatures were taken at least four times daily, and a daily record was kept of symptoms. No patient was treated unless he developed an oral temperature over 100° F. or until he had had a parasitemia without fever for 7 days. No attempt was made to determine how much longer than 7 days the patient might have continued with afebrile parasitemia nor how many patients might have become negative spontaneously without treatment. The results are presented in Table 1.

It is seen that during a 5 months period in which approximately 200 patients were having smears examined twice weekly, 81 were admitted because of a positive smear without fever. Of these, 68 developed fever over 100° F. within 2 (range 1 to 7) days after admission and were started on treatment. Only 13 patients, or 16 per cent of the total group of 81, had parasitemia without fever for 7 days. Four, however,

TABLE 1

The Occurrence of Gametocytes in Routine Blood Smears of 81 Patients with Afebrile Relapses of Vivax Malaria

	Patients Who Developed Fever			*Patients Without Fever for 7 Days*		
	Pacific	*Mediterranean*	*Total*	*Pacific*	*Mediterranean*	*Total*
Source of malaria	53	15	68	8	5	13
No. of patients with gametocytes	3	4	7	1	3	4
Per cent of 81 patients with gametocytes			9			5
Total smears examined			203			87
Per cent of smears with gametocytes			3			7
Average days without fever			2			7

complained of other symptoms which, from previous experience, could rightfully be attributed to malaria. These four men would probably have taken sufficient quinacrine or quinine to rid their blood of parasites without medical advice. Soldiers who have had malaria frequently indulge in self-medication and it is known from unpublished studies that doses of quinacrine smaller than those customarily recommended will usually temporarily eliminate parasitemia.

Of 61 relapses of Pacific malaria recognized by the finding of a positive smear on routine examination, 8, or 13 per cent, went 7 days without fever, as compared with 5, or 25 per cent, of the 20 Mediterranean relapses. Although the groups are small, the data support the clinical impression gained over a period of approximately one year, that parasitemic relapses without fever were more frequent in Mediterranean than in Pacific malaria. It is not to be inferred that 25, or 13 per cent, respectively, of all relapses of Mediterranean and Pacific malaria are "silent." Actually, during the 5 month period of observation, over twice as many patients were admitted to the treatment ward because of a full blown malarial attack as were admitted because of a positive smear found on routine examination. The proportion of patients admitted because of positive smears prior to development of full blown symptoms would probably have been increased, however, if smears had been taken more frequently than twice weekly.

Of the total group of 81 patients, 11, or 14 per cent, developed gametocytes and 4, or 5 per cent, were in the group who had no fever. Gametocytes were found in 3 of the 5 afebrile Mediterranean relapses and in only 1 of the 8 Pacific relapses. The higher incidence of patients with gametocytes in the "silent" cases may be explained by the fact that these patients went without treatment long enough to permit an average of seven smears per patient as compared with only three smears per patient in the group who developed fever in an average period of 2 days. Three per cent of the smears in the group who developed fever showed gametocytes as compared with 7 per cent in the afebrile group. This increased incidence of gametocytemia in patients with asymptomatic parasitemia may explain the higher percentage of infected mosquitoes reported by Watson for such a group.[6] This author further reports that 11.8 per cent of mosquitoes fed on 117 cases of relapsing Pacific vivax malaria became infected, but since the percentage of patients who yielded infected mosquitoes is not stated, the results cannot be compared with those of this study.

Although the demonstration of gametocytes in routine examinations of blood films is not absolutely necessary for infection of mosquitoes, in general the infectiousness of a patient's blood depends upon the number of gameto-

cytes present.[6] Therefore, it seems fair to conclude that the great majority of these patients (85 to 95 per cent) whose relapse was first recognized by parasitemia, probably constituted little menace as far as the natural spread of the disease is concerned. The situation in American soldiers who are promptly treated for attack is very different from that in repeatedly infected, untreated natives, who frequently have parasitemia without symptoms.

Though the data presented allow optimism, they do not mitigate the need for expansion and maintenance for good peacetime standards of mosquito control.[7]

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University of Michigan Announces In-service Training Course in Housing

The School of Public Health of the University of Michigan announces an In-service Training Course in Housing to be held in Ann Arbor, August 27–29.

"The purpose of the course is to bring together in one place in a well ordered and integrated unit the essence of the research study and experience that has accumulated in the more recent years from the concentrated effort that has been focused on the problem of housing." The course has been planned with the needs of administrative public health officials, especially administrative health officers and engineers, in mind. The material to be presented may prove to be familiar to students of housing, but in most respects new to health officials.

Both lectures and discussions are scheduled. The subjects will include considerations of basic public health and sociologic factors underlying the need for better housing, standards, housing codes, and methods of appraisal of existing dwellings. The lecturers and discussion leaders include well known experts in various phases of housing.

Anyone desiring further information can obtain it by writing to H. E. Miller, School of Public Health, University of Michigan, Ann Arbor, Mich.

Health, Education and Security—Some Post-war Perspectives*

WATSON B. MILLER

Federal Security Administrator, Washington, D. C.

THERE are special reasons for counting it a privilege to open this 44th Annual Conference of State and Territorial Health Officers. No year in the world's history has been so eventful as the 12 months since you met last April. During this short time we have seen the collapse of both Germany and Japan, and the opening of the long and difficult, but surely successful, return to the ways of peace. Or perhaps "return" is the wrong word. What the world is really engaged in is a pioneer struggle to explore new and untried ways of peace on a new and unprecedented world-wide front.

These events have had their counterpart within the fields where the Federal Security Agency is concerned. Along with the rest of the nation's public and private business, our job—in education, in social security, and in health—has been going through a reconversion process, as you who are out on the firing steps know even better than I. We are feeling the changeover in many ways.

There have been shifts in personnel all along the line. Men are returning from military duty as seasoned veterans. In the Federal Security Agency, as no doubt in your state agencies, they are helping us to plug the wartime gaps in staff, and to build up our depleted ranks.

Paralleling the veterans' return, the Procurement and Assignment Service[1] has been winding up its affairs—terminating one of the outstanding programs of professional coöperation with government that made the nation's all-out mobilization an unprecedented success.

As some return again to their old places, others move on to the outposts of peacetime readjustment. Paul McNutt—who guided the Federal Security Agency through its first years, who took on the war man power problem at its height and saw it through to war's end—last fall was assigned by the President to one of the nation's most difficult and delicate areas of post-war readjustment. In spite of all regrets, we could but give our first Federal Security Administrator a heartfelt Godspeed when he returned to the Philippines to take up again the duties of High Commissioner during this crucial period.

I am deeply mindful of the obligation that has been placed upon me in following him. Without the experience gained in the years I served under him in the Federal Security Agency, without the generous coöperation and support for which both of us have always counted on you, as on other state officers who are also our partners, I would have even more trepidation in shouldering a task of such magnitude.

The Federal Security Agency's job has immediate implications and potentials for the future which, in my estimation—and I speak with all humility—place it right out in the front line of

* Meeting of State and Territorial Health Officers, April 8, 1946. (Footnotes bring factual data up-to-date, as of June 1, 1946.)

national concern. As evidence of this fact, consider how repeatedly in the 9 months since VJ-Day, public issues have had a direct and inescapable impact upon our work—and yours.

Three times during this period the President has focused the attention of the Congress and the people upon urgent, unmet needs in health, education, and security.

The first of these occasions was his message of September 6, less than a month after the fighting stopped. With the guns hardly stilled, he called for legislation on this broad front to implement and give substance to what President Roosevelt had called the "Economic Bill of Rights."

This was followed by the historic Health Message of November 19—historic because it was the first time a Presidential message to the Congress had ever been devoted exclusively to health, and because it proposed the broadscale program which people like you have long known is necessary.

Again in his comprehensive message on the State of the Union, transmitted to the Congress on January 21, Mr. Truman highlighted the key importance of these needs. In his own summarization, he said:

> "Our basic objective—toward which all others lead—is to improve the welfare of the American people. In addition to economic prosperity, this means that we need social security in the fullest sense of the term; the people must be protected from the fear of want during old age, sickness, and unemployment. Opportunities for a good education and adequate medical care must be generally available."

The President has not been alone in this concern for health, education, and security. Legislative interest has been equally active, and an unprecedented number of bills in this field are now before the Congress.

Hearings before the Ways and Means Committee on expansion of the social security system began late in February and after a brief recess are again under way. Early in April hearings started on Senate 1606—the National Health Bill introduced by Senators Murray and Wagner, and companioned by the similar bill which Representative Dingell has introduced in the House.[2]

Meantime, two other major pieces of health legislation are still further under way. The Hospital Construction Bill has passed the Senate and hearings have been held in the House; the Mental Health Bill has passed the House and hearings have been concluded in the Senate.[3]

I should also mention one other Bill which, though on the periphery of your field is of considerable interest to you. I refer to the proposal for a permanent federal unit to carry on the Social Protection program. Hearings on this Bill have been completed in both Houses, and the Senate Committee has already unanimously reported on it favorably. I am glad to have this opportunity to express my thanks for the support which many of you have given to this proposal. It is a large factor in the encouraging progress the Bill has made so far.

In stressing broad social goals, this measure reflects the changing emphasis which has been shaping the Social Protection program for some months past. As you know, when it was first set up 5 years ago, Social Protection was regarded as part of the all-out effort to meet the wartime emergency in venereal disease control.[4] With the coöperation of the Army, the Navy, and state and local health officers, houses of prostitution were closed in some 700 communities. Though this was a substantial aid to the control program, the functions of Social Protection in this connection were quite naturally questioned by some health officers.

As the peak of this wartime hazard has passed, Social Protection has been able to devote more attention to prosti-

tution and its attendant vice and crime, as problems in and of themselves. Rehabilitation has been increasingly emphasized, and efforts have been directed toward problems of promiscuity, juvenile delinquency, and family disintegration.

This policy is embodied in the new Bill; it makes no reference to venereal disease control, and the responsibility of the Social Protection Division which would be set up in the Federal Security Agency is defined as technical and professional assistance to states and communities in these social aspects of the overall problem. If the new division is established, it should strengthen the two-way coöperation between health officers and social protection representatives.

So much for legislative developments since VJ-Day. Though I have only been hitting the high spots, they serve to indicate the sharp upswing of interest and the widening perspective of government services to promote health, education, and security.

But as you and I well know, government services, however necessary, do not get very far merely on public interest and their own good intentions. Laws are not equipped with self-starting or self-operating mechanisms; they must be administered—and from that simple, inescapable and all too obvious fact stem about 99 per cent of all the headaches which our jobs sometimes seem to entail.

It may be cold comfort, but nonetheless worth remembering, that these headaches are not confined to our own field. To some extent, they are inevitable in any operation—government or non-government—that takes in millions of people and covers as much territory as the U.S.A. But good organization can do a lot to iron out the rough spots and relax the bottlenecks.

It is encouraging, therefore, that the current concern to extend the scope of health, education, and security services has been paralleled and complemented by concern to improve administrative organization. This problem, like that of extending services, has had the attention both of the President and of the Congress. Following a Presidential request, the Reorganization Act of 1945 was passed just before the end of the year, giving the President authority to realign federal agencies. Within certain limits, he is empowered to regroup government agencies according to their major purposes, in the interests of economical and efficient administration and the orderly transition from war to peace. The Executive Office has been engaged for the past couple of months in a thorough-going study of improvements that might be made pursuant to this law. But since this study is still in process, we do not yet know how the eventual outcome will affect our own operations.[5]

Public interest in reorganization has not been limited, as the President's reorganization plans must be, by the provisions of this Act. It has gone on to lively consideration of a new Executive Department, covering this broad field of health, education, and security. As you probably know, the Reorganization Act expressly reserves from the authority conferred on the President that of creating any new department. As a matter of fact, the establishment of a department is clearly a matter for Congressional action; and no one, so far as I know, has any wish to upset this sound legal and historical precedent. But in recent months, there has been an active revival of proposals, like those first put forward 10 years or so ago, to encourage Congressional action according Cabinet status to this area of the federal service.

This is all part of a natural evolutionary process. Even at the time the Social Security Act was passed in 1935, experienced observers were pointing out

that this broad series of services could operate more effectively as members of the same family. The earlier Reorganization Act made this possible, and the Federal Security Agency was set up in 1939. But within less than 3 months, before the several members of the family had really had a chance to get acquainted with each other, the fighting had begun in Europe, and practically the whole lifetime of the Agency has been colored by the progressive emergencies of these wartime years.

Now, with the current upsurge of pent-up interest in health education, and social security, the possibility—and, as many think, the urgent need—for departmental organization has again become a subject of public discussion. Many national organizations have endorsed the idea, among them the Women's Foundation and the American Public Welfare Association, both of which have made public specific proposals for such a department.

Well, these are just some of the things going on in the great arena of national affairs which directly affect our tasks and yours—which in their import for the future hold forth great responsibilities and opportunities for all of us, and great hopes for the furtherance of the general welfare.

In trying to gather together all these threads that are weaving a new pattern of services to promote the general welfare, I would not give you the impression that we in the Agency have been sitting back passively. On the contrary, we had foreseen each of the major developments I have just been reviewing; and, as they emerged for public discussion, they have found us prepared. What I have been trying to do so far this afternoon is to sketch the background, to refresh our perspective on the tasks in which we are presently engaged. Within the Federal Security Agency, these tasks include not only the day-to-day operation of the federal share in programs which are in the main carried out through the states. They include also the equally continuous and intensive study of problems both of program and administration, and the making of official recommendations on request of the President or the Congress. On all these fronts, the past year has pressed us hard; and I think I can say that our staff has measured up to the demands placed upon it.

I need not review with you the research on health and on social security or the recommendations which the Public Health Service and the Social Security Board have made. You might, however, note again in passing that in their main outlines, the proposals now before Congress clearly reflect these findings and recommendations.

What I want to do now is to bring you up-to-date of some of our thinking which has been less publicized. We have been reëxamining the premise on which the Federal Security Agency was founded. We have been unwilling to coast along, merely taking it for granted that the Agency's initial authorization was right in assuming that it is "necessary and desirable to group together . . . those agencies of the Government, the major purposes of which are to promote social and economic security, educational opportunity and the health of the citizens of the Nation." We have been trying to get down to first principles—and we think we have, to a very considerable extent. In the process, we believe we have substantiated the premise on which the Agency was founded; and we have uncovered some pretty solid common ground on which to build both broader services and better administration.

In upholding the conclusion that this broad view should be maintained within whatever departmental framework is eventually established, I am aware that we are following a different line of reasoning from that which many of you

have held. You would like to see public health accorded Cabinet status—and so would we. Where we do not all see eye-to-eye is on the question of separation—of divorcing health from education, welfare and social security, and setting up a department exclusively for this one segment. After months of earnest study, we believe that the weight of experience is on the other side. I tried to summarize some of these considerations for Dr. Getting last November; and because it is very much to the point, I should like to repeat in part what I wrote to him then:

"Many Government services," I pointed out, "fall partly in the field of health and partly in other fields. This is conspicuously true of the work of the Food and Drug Administration and the Office of Vocational Rehabilitation. Health education is of concern to the Office of Education, while there are important health aspects of the social insurance and public assistance programs administered by the Social Security Board. All of these units of Government would presumably be excluded from a department of health; all of them, I am convinced, would suffer in consequence.

". . . Such a divorcement would have a similar effect on our health work itself. I believe that it too would suffer. Just as the causes of public health hazards may be economic and social as well as strictly 'medical,' so the effects of public health work are reflected in economic and social betterment as well as in improvement of physical well-being. Since public health does not exist as a thing apart in the everyday life of the people, it would seem less than realistic to isolate it in the Government structure. Particularly as it concerns our planning for the future, our work in the field of health will benefit from a close coördination with that in the fields of education and social security."

Further study since that letter was written has amplified and supported the conclusion that this partnership of health, education, and security stems from fundamental relationships in our national history and our common human needs.[6]

Basic authority for federal concern in this field rests upon the concept of the general welfare embodied in the Constitution. All of these services with which we are concerned were really created for no purpose short of "promoting the general welfare" in the broad Constitutional sense. They represent what Abraham Lincoln called "the legitimate object of Government"—in that they do for the people what they need to have done, but cannot do for themselves alone.

This "legitimate objects of Government" seems to apply here with special urgency, since health, education, and security, more than any other public services, affect individuals and families in their fundamental character as human beings. Their common purpose is to promote the welfare of people simply as people.

The need for coördination within a clear-cut, comprehensive framework will become more evident—and still more urgent—as the scope of these programs is expanded. And they are bound to grow, for the number of people affected will increase simply with the passage of time, even if nothing like the legislation now before Congress is ever enacted into law.

Nor is this interrelationship confined to federal activities. "Combined operations" are equally necessary to forestall lopsided overemphasis and make for constructive balance in state programs. The imposition of barriers anywhere along the line of federal and state administration only confuses the issue and impedes the various services by setting them at cross purposes. As the integration of federal activities improves, state and local administration

should become simpler, more flexible, economical and effective. And the net result should be that the people will get an increasing return on their investment.

Repeatedly highlighted by the aftermath of World War I, by the repercussions of the depression, and by the critical strains placed on community services during recent war years, this truth has been driven home: health, education, and security cannot be isolated. By now we have a good deal of experience which serves to clarify their common characteristics and define the common ground on which they stand.

For one thing, there appears a clear-cut line of demarcation between these general services representing the common denominator of universal human needs, and special services geared to the needs of certain groups—of farmers, for example, or wage earners in industry. Government aid to farmers, or the "little business" measures of recent war years, for instance, certainly promote security; but they do not come within our area because each is directed to a group interest—rather than to the general welfare.

A second point common to programs within this area is that health, or education, or security is an avowed and *major* concern, rather than a by-product. The Tennessee Valley Authority, for example, contributes to health, education, and security; but it does not belong here because its major concern is with the use of natural resources, and these benefits, however important in themselves, are in a sense derivative.

A third characteristic of all these programs is that, though national in scope, they are local in application. They achieve their end-results in terms of what actually happens in the local communities where people live. Of course, this is also true of other programs; but it seems particularly significant in these services which must be both accessible and flexible if they are to realize their purpose for the individuals and families concerned.

The established American device for meeting nation-wide local needs is the grant-in-aid principle—which, by the way, originated in this area. The great expansion of federal aid programs in recent years has occurred largely within this field, and today this principle is more extensively applied here than in any other government activity.

All in all, the Federal Security Agency administers 10 grant programs, representing federal appropriations of more than half a billion dollars. I am sure you would tell me that, from the viewpoint of the states, all such grants should be based on a coördinated policy of state-federal relations in health, education, welfare, and social security. And we here in the Federal Security Agency would agree. With some 70 per cent of our total budget devoted to these grants, we have a tremendous stake in the continuing improvement of this whole system. We have a stake in efficient administration of this very substantial investment. Beyond that, we have a stake in joining with you to see that the citizens get full measure, in terms of benefits and services.[7]

The case for making the area of public responsibility as broad as the area of risk has been further underscored by trends which have long been gaining impetus. Increases in the span of life not only bear evidence to gratifying advances in health; they also point up changes in individual and family needs for security. So also continuing advances in education foreshadow the expanding needs of the future. Illiteracy is all but wiped out and at least 80 per cent of our young people now enter high school. The way in which returning GI's have seized upon the chance to go back to school indicates that this upswing will be accelerated; but it also points up some of the obligations of education beyond the three R's—in the

broad realm of the general welfare. And so the circle of our interest fans out. As a world leader looking to the principles of democratic government for its present and future strength, the United States must demonstrate the capacity of the American people to serve their own best interests through the established pattern of American Government.

The evolution of this broad area of public service, the definition of its boundaries, and the improvement of its operation present inescapable challenges to us all. We can meet these challenges—if our advance is based squarely on experience—on the combined experience of the federal agencies, the states, and the local communities where all these activities must measure their end-results; above all, on the experience of the people who have called upon government to do for them in this field what they need and want to have done, but cannot do unaided. Whatever the future of these programs, it is *one* future—in government organization, as in the lives of the people served.

NOTES

1. On May 17, 1946, the Directing Board of the Procurement and Assignment Service held its final meeting, and on June 30, the federal administrative office will close its books. The Board's Chairman, Dr. Frank H. Lahey of Boston, has been awarded the Medal of Merit by the President, for his personal devotion and the outstanding service of the Board.

2. After a brief recess, the hearings are continuing into June.

3. During May the Hospital Construction Bill was reported to the full House Committee by the Subcommittee; the Mental Health Bill was reported out by the Senate Committee.

4. Recent legislation removes the termination date from the May Act, passed in 1941, as an emergency measure for the war period. This law prohibits prostitution within such reasonable distance of military or naval areas as the Secretaries of War and Navy determine necessary; it authorizes and directs the Federal Security Administrator, together with the two Secretaries, "to take such steps as they deem necessary to suppress prostitution . . . and to accept the coöperation of the authorities of States and their counties, districts and other political subdivisions in carrying out the purposes of the Act." Coöperation of the local, state, and federal agencies concerned has been so successful that during the entire period of the war it was necessary to invoke federal action in only two instances.

5. Three Reorganization Plans were transmitted to Congress by the President on May 16, 1946. Unless disapproved by Congress, the Plans go into effect 60 days after this transmittal date.

Reorganization of the Federal Security Agency is provided for under Plan No. 2. Major changes include: transfer to the Federal Security Agency of the Children's Bureau from the Department of Labor, except for its Child Labor functions, of Vital Statistics functions from the Bureau of the Census in the Department of Commerce, and of the functions of the United States Employees Compensation Commission, with abolition of the Commission as such and appointment of an appeals board; abolition of the Social Security Board as a legally constituted entity within the Federal Security Agency and transfer of its functions to the Federal Security Administrator; authorization for the appointment by the Administrator of two additional assistant administrative heads of the Agency; and provision for the coördination of the Agency's grant-in-aid programs through the establishment by the Administrator of uniform standards and procedures under which participating state agencies may submit a single plan for such grants.

In his accompanying Message, the President defines "the basic purpose of the Federal Security Agency" as "the conservation and development of the human resources of the Nation," and itemizes the following functions as coming "within that broad objective"—child care and development, education, health, social insurance, welfare, and recreation. Emphasizing the fact that the promotion of these services "is a vast coöperative undertaking of the Federal, State and local Governments," the Message points out that "inconvenience and confusion for all concerned can be avoided" by the proposed coördination of grant-in-aid procedures and state plans. It describes the current reorganization as "a second step in building a central agency for the administration of Federal activities" in this field, and concludes with a statement of the President's intention soon to "recommend to the Congress that legislation be promptly enacted making the Federal Security Agency an Executive Department" on the grounds that "the significance [of its services] for the future of the country demands for it the highest level of administrative leadership and a voice in the central councils of the Executive Branch."

6. See the summary of the President's Reorganization Message under footnote 5.

7. See footnote 5, for the provision on coördination of grants-in-aid under Reorganization Plan No. 2.

Medical Service Plans Across the Country*

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RECENT developments in the field of national health emphasize the timeliness of this discussion of medical service plans. President Truman's Health Message to Congress on November 19 [1] and various legislative proposals made since that time have focused the attention of the health professions on methods for providing adequate medical care to the people of this country.

In spite of the ambitious title, however, it is impossible in the space available to review, even in summary, all of the 32 non-profit community medical plans now in operation and the several more which are planning to open their doors.[2] Moreover, information current today would be out of date before it could be printed.

The only practical approach, therefore, is to discuss some general features of the various types of medical service plans, and to indicate lessons that have been learned from past experience. We need constantly to remind ourselves that this field is so new that there are no experts—it behooves us to study and learn as we proceed along the way to realization of our goals in national health.

SIGNIFICANT GENERAL CHARACTERISTICS

First, only medical service plans which provide some method of prepayment for the costs of physicians' services, as distinguished from payment for hospital expenses or compensation for disability, will be considered here. Before proceeding to the plans themselves, however, it will be useful to enumerate some of their significant characteristics, which affect not only their business success but also their social value. Four types of characteristics suggest themselves: (1) coverage, both as to population and services, (2) financing, (3) organization of services, and (4) utilization of services.

1. *Coverage*—(a) Population. Plans open to the entire population of an area for enrollment are rare. To avoid enrollment of only unhealthy subscribers, many plans are confined to employed persons or to persons in groups, such as employees of a single factory, etc. Population segments frequently excluded are: dependents, persons under or over specified age, persons outside of defined groups, and persons who fail to meet specified physical standards. In addition to the limitations imposed by plan contracts, the cost often prohibits participation of low income families most in need of protection. Some plans limit enrollment to persons with income below a specified ceiling.

(b) Services. Complete care in home, office, or hospital, with preventive services, and diagnostic and other specialist services including x-ray, pathologic examinations, etc., is rarely furnished, either because of financial limitations or because personnel and facilities for complete care are not

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available. Common exclusions are: home and office care; drugs; x-ray and other special diagnostic procedures; care of conditions known to exist before enrollment, such as hernia and other elective surgery; dental care; chronic illness; conditions which develop within a specified waiting period after enrollment.

Most commercial and certain types of non-profit plans provide no service at all, but indemnify the subscriber at specified rates for various illnesses, leaving him to make his own financial arrangements with the physician. Some plans provide service to subscribers with incomes below and cash indemnity to those above a specified limit.

2. *Financing*—Many non-profit plans receive grants to underwrite initial expenses. Subscriber income may be collected by payroll checkoff, by individual payments at periodic intervals, or through fraternal or other organizations which collect dues. For employed persons, the assumption of costs by the employer varies from zero to 100 per cent.

Payments to physicians may be by fee-for-service, with or without proration if bills exceed income from subscribers; by a fixed amount per year for each person in the practice of a given physician or group (capitation); by salary; or by various combinations. Some plans are served by groups of physicians which collect service or capitation fees and allocate the income within the group.

Plans vary greatly as to the proportion of payments by subscribers which is spent on benefits. Overhead costs of enrollment and administration differ widely, and are of real concern to the subscriber.

3. *Organization of Services*—The extent to which plans stimulate better organization and quality of medical service varies greatly. Some plans encourage or even exclusively utilize group practice; some bring in specialists for consultations. Some operate without any effect whatever on organization, simply utilizing what already existed in the area. Organization also varies as to geographic coverage; some sparsely settled areas are served by local plans without resources in specialists or hospitals beyond the county line; other plans can call upon service from anywhere in a large medical trade area.

Organization may be such that administration is controlled by the physicians, by the subscribers, by management, or by joint action of the groups in various combinations.

4. *Utilization*—This is the ultimate test of any plan. Growth, proportion of eligible population covered, and turnover are all indications. Over-utilization, actual or fancied, may be a problem in the more comprehensive plans. Group practice is sometimes used to control over-utilization of specialists. Controls by education through active subscribers' committees, or by financial restraints such as extra fees for first visits, home visits, or excess visits may be applied.

THE SITUATION TODAY

Turning now to the situation as it exists today, let us risk over-simplification and classify medical service plans into five groups, indicating approximate population covered on January 1, 1945, as estimated by Reed [2]: (1) commercial insurance, 5,000,000; (2) industrial plans, 1,900,000; (3) private group clinics and consumer sponsored plans, 495,000; (4) community medical plans, usually sponsored by medical societies and frequently associated with Blue Cross (hospital service) plans, 1,760,000; (5) rural plans sponsored by the Department of Agriculture, 307,000. These total 9,462,000, and omit an estimated 200,000 or so eligible for university health services and other miscellaneous types of coverage. Suf-

fice it to estimate that at present approximately 10,000,000 persons are covered by some type of prepaid medical service.

COMMERCIAL INSURANCE

The estimated 5,000,000 persons insured with commercial carriers constitute half of all holders of medical insurance in the country today. Most have contracts which provide reimbursement of stipulated amounts for medical service in surgical and obstetrical cases only. Additional coverage for other physicians' services is quite new and experimental, with probably not more than 150,000 policies carrying this provision. At least 80 per cent of those insured for surgical and obstetrical care are enrolled on a group basis, mostly by large life insurance companies in conjunction with group life insurance policies.

INDUSTRIAL MEDICAL SERVICE PLANS

Industrial medical service plans, now estimated to cover 1,900,000 persons, are important as pioneers, as well as for the excellent service which many of them render. The Northern Pacific Mutual Beneficial Association was formed in 1882 for employees of the Northern Pacific Railroad, and in 1938 was rendering complete medical service and hospitalization to 16,500 employees, who contribute 1 per cent of their earnings ($9 to $18 per year). Many plans, such as the Tennessee Coal and Iron Company plan of Birmingham, Ala., the Stanocola plan at Baton Rouge, La., the Endicott Johnson plan at Binghamton, N. Y., and the railroad plans, have been operating for 20 years or more. They are rendering service, usually on a group practice basis with salaried physicians, and with satisfaction to employees and increased efficiency for management. Other plans, such as the Kaiser Permanente plans, were developed recently, even since the war. A few, like Stanocola, cover dependents. Service is much broader than the usual commercial insurance, and many companies bear part of the cost. The rates quoted for the Northern Pacific plan indicate company subsidy, and the Endicott Johnson plan includes dependents, and the company pays the entire cost.

Many of these plans were stimulated partly by need for service at remote places or under war boom conditions in order to attract employees and keep them on the job. In these days of man power shortages, employers have been glad to support medical service plans as an added incentive when wage increases were forbidden.

PRIVATE GROUP CLINICS AND CONSUMER-SPONSORED PLANS

Data on these plans are most difficult to secure because of their independence, their lack of uniformity, and their geographical scatter. One of the oldest and most complete medical service plans in the country is operated by Latin Americans in Tampa, Fla., through clubs called "centros." They are fraternal organizations with social and educational activities as well as health insurance, and are run by the membership. The first was organized in 1891 according to Avnet,[3] and was the first consumer-sponsored plan in the country. Most Latin Americans in Tampa belong to the "centros," which furnish rather complete care. Their operation is deserving of further study.

One of the best known consumer-sponsored plans is the Farmers Union Coöperative Hospital Association at Elk City, Okla. This was organized to provide preventive and early therapeutic care for members, and to provide hospital care at reduced rates. The emphasis is the opposite of the "catastrophic" illness coverage of commercial and community medical service plans. Its growth has been steady, and the members consider it an

indispensable community institution.

Group Health Association of Washington, D. C., is a consumer-sponsored plan which was organized by government employees and is famous as the subject of the federal government's successful suit against the American Medical Association for restraint of trade. Wartime shortages of professional personnel, failure to organize the medical staff on a true group basis, and a preponderance of subscribers in poor health through lack of group enrollment policies have prohibited new enrollments for some time. With new plans for reorganizing and strengthening the medical staff and for improving enrollment techniques and selection, the future should show improvements. The service includes physicians' care in home, office, or hospital, and hospitalization, at annual rates of $24 for adult, $12 per child, and maximum family charge (two adults and three children) of $84.

Among private clinics, one thinks at once of the Ross-Loos Clinic in Los Angeles, the Milwaukee Medical Center, and Trinity Hospital in Little Rock. Ross-Loos exemplifies the outstanding success that is possible with group practice rendering comprehensive service on a prepaid basis to employed persons. Started in 1929 at the request of the employees of the Los Angeles County Department of Water and Power, the plan in 1943 had 27,000 members, all employed, who pay $30 per year for comprehensive service including hospitalization except for maternity cases, and excepting dental care, appliances, special nursing, and treatment of "social diseases." Earlier attempts at covering entire families for much lower rates were unsuccessful and were discontinued. Dependents of subscribers do, however, receive service at reduced rates: 50 cents for an office call and $25 for a major operation.[3]

These examples hardly indicate the extreme variation which exists among plans of this type. Coverage tends to go beyond "catastrophic illness" but varies greatly as to exclusions, waiting periods, preëxisting conditions, coverage of dependents, etc. Most of the private clinics offering prepaid service practice on a group basis with staffs of practitioners and specialists using common facilities and pooling income through a partnership, salaries, or a combination. Such groups may or may not operate hospitals, but the common use of expensive equipment permits many diagnostic studies to be done at the clinic which would ordinarily require hospitalization by the solo practitioner.

Some consumer-sponsored plans, such as Group Health Mutual of Minnesota, make arrangements for care of their subscribers at private clinics in practice on a fee basis, instead of organizing their own medical services. Some privately initiated clinics, such as the Milwaukee Medical Center, render service on a fee as well as a prepaid basis.

The very diversity indicates the lack of adequate knowledge required to establish an "ideal" plan. Our thanks are due those who have experimented and striven for improved methods of rendering service. The vicissitudes and the failures which have accompanied the successes, however, together with the small coverage of less than half a million subscribers, indicates that additional stimulus is necessary if prepaid medicine is to be extended by this pattern.

COMMUNITY MEDICAL PLANS

This term is applied by Reed[2] to non-profit plans open to the general public of a state or locality and *offering free choice of physician*. Most of them were organized under the sponsorship of the medical society in the area, and in many cases the stimulus came from a hospital service plan (Blue Cross). Many are affiliated with Blue Cross plans.

The first medically sponsored plans were established in the West as a defense against commercial exploitation of physicians. Early in the century, railroads, mines, and lumber companies contracted with physicians and hospitals for services to their workers. The business operation stimulated the development of "hospital associations," first under medical but later under lay control, to handle the contracts. Many did not operate hospitals. Competitive bidding resulted, with more service offered for less money until rates of remuneration were forced to low levels. Finally, in 1929, county medical societies in Oregon and Washington organized "medical service bureaus," stock in which was owned by the physicians themselves. These bureaus contracted with employers to furnish complete care, and pro-rated income among members after hospital and other costs were paid. Over 300,000 persons are covered by these plans in Oregon and Washington.

Their costs for hospitalization and physicians' services, including home and office care, range from $21 to $33 per year for employed persons; dependents are not covered. Bureaus in Washington State, moreover, will not enroll clients with income over $2,500 per year. The plans are not expanding at present because the economic threat from hospital associations has largely disappeared and war wages have made service to fee patients more remunerative than to insurance patients.

Two other state plans of interest as examples of trends are California Physicians Service and Michigan Medical Service.

California Physicians Service was organized in 1939 as the answer of the California Medical Association to the compulsory health insurance bill sponsored in the legislature by the governor. Originally planned to furnish complete physicians' services to employed persons for $20 per year, the venture was soon in difficulties. Physicians were to be paid on the basis of a service unit with a par value of $2.50, but par was never reached. After three years, only 40,000 subscribers had been enrolled, and the demand for services was so much higher than anticipated that unit values had fallen to 50 per cent of par or less.

Control of the service was vested in a board of trustees composed of 10 physicians and one layman. Subscribers were dissatisfied because they had no voice in administration of the plan; physicians were unhappy at the low fees and complained of over-utilization. Some doctors imposed extra charges; others chided their patients for buying "cutrate" medicine. Finally, a large group of physicians resigned en masse.

The only remedy was reduction of benefits and raising of rates for subscribers. Service was reduced to surgical and obstetrical care while hospitalized. Persons with incomes over $3,000 were previously excluded, but the plan was opened to them with the understanding that physicians might make extra charges. With these adjustments, the unit value reached 90 per cent of par in 1944. Further activity to increase enrollment was stimulated by the spate of compulsory health insurance bills introduced at the 1945 session of the legislature, and CPS boasted 162,000 subscribers on July 1, 1945.

Michigan Medical Service, with almost four times the enrollment of its nearest rival, underwent an experience similar to that of CPS. Organized in 1939 with the backing of a strong state Blue Cross plan, MMS undertook to provide virtually complete service to employed groups and dependents at annual rates of $24 for single persons, $30 for married couples and $54 for families. These rates did not include hospitalization, and the subscriber paid for the first $5 worth of medical costs

each year. Enrollment lagged, utilization was high, and the plan was soon in the red.

In 1942, benefits were reduced to surgery, x-ray, obstetrics and anesthesia in hospitals, and rates to $7 for single, $19 for couples, and $27 for families. Income limits for guaranteed full service are $2,000 single and $2,500 married. Support from UAW-CIO unions at Chrysler and General Motors plants and continuing coöperation of the Blue Cross plan have pushed enrollment to a whopping 842,000 on July 1, 1945.

The plans more recently sponsored by medical societies are profiting by these experiences, and usually follow the pattern of benefits and fees finally evolved by California and Michigan Medical Services. Surgical and obstetrical care while in the hospital is the rule, with variation in other benefits such as laboratory and x-ray services.

The ceiling on subscriber income has raised knotty problems in both selling and servicing. Physicians accustomed to payment on the "sliding scale" frequently insist upon a limit to the incomes of subscribers for whom service is guaranteed. Subscribers misunderstand; some object to the income investigation; some enroll while below the income limit and object to extra charges when income increases. Many plans have given up all attempts to provide service, and simply indemnify for certain medical costs in the same way as the commercial companies.

A second problem facing these plans is their multiplicity and lack of standardization. Some plans do not provide reciprocity with other plans. Subscribers in a non-reciprocating plan can receive service only in their home area. Plans which do reciprocate differ as to details of coverage so that administration is complicated, and collections may be delayed.

Finally, these plans have no influence on the quality of care rendered, nor do they stimulate improvement in the distribution of physicians according to medical needs. Their contribution to the payment of medical bills by employed persons and their dependents is real, but their cost puts even their limited coverage beyond the reach of those most in need of care. With all these limitations they do not give promise of bringing complete health care to all the people.

It is unfortunate that organizers of many new medical society plans today are motivated, as were the founders of the services in California, Washington, and Oregon, by desire to defend against real or fancied encroachment, rather than by a constructive desire to improve and extend medical service. An approach which concentrated on the social values inherent in even these limited programs would contribute substantially to the development of a sound service for all citizens.

RURAL PLANS OF THE DEPARTMENT OF AGRICULTURE

These plans, administered by the Farm Security Administration and the Labor Branch of the Production and Marketing Administration (formerly the War Food Administration), constitute the most important and extensive contributions of the government in this field. They have been developed with the full coöperation of the Public Health Service, which has assigned medical, dental, and public health engineer officers to the Department to organize and supervise the program.

Two types of plan are operated: (1) direct service for imported farm labor, and for migrants and certain other classes of domestic farm labor; (2) prepayment plans for Farm Security clients. The direct service plans were originated by the Farm Security Administration to provide care for migrant workers, but became a direct war pro-

gram of the War Food Administration when the government undertook the importation of foreign laborers from Mexico and the West Indies under treaty provisions which guaranteed health services. In addition to building and operating hospitals in Belle Glade, Fla., and at Eleven Mile Corner, Ariz., the government assigned full-time doctors and nurses for service in other areas. Services were also procured from community physicians, hospitals, nurses, and health departments. The cost of complete service is estimated at about $24 per year, and is borne entirely by the government. No prepayment is involved.

The Farm Security Administration prepayment plans were initiated in 1936 when it became apparent that ill health, either as a cause of disability of the farmer or as a source of expense for care, was a major cause of default on loans. Clients were offered opportunity to expand their annual loan budgets by including an item for medical care. The budgeted amounts for all clients in the plan were pooled, and agreements were made with physicians, usually through their medical societies, to care for these clients for the sums advanced, prorated monthly on a fee basis according to services rendered. Payments from clients ranged from $20 to $50 annually, depending upon ability to pay, scope of service, etc. About two-thirds of the physicians in the counties with plans participated. At the peak of the program in June, 1942, plans were operating in 1,140 of the 2,500 rural counties, and 117,000 families with over 500,000 individuals, or 60 per cent of the FSA clients in these counties, were enrolled. This had fallen by 1944 to 60,000 families in slightly less than 1,000 counties, with about 300,000, or 41 per cent, of the clients in these counties enrolled.

Services depended upon local availability, and were largely of an emergency nature. In a few areas, notably New Jersey, Western New York State, and California, fairly complete service, including home and office care, was rendered by arrangement with community medical service plans.

Turnover has been high; in Ohio, McNamara and Mangus[4] found that only 8 per cent of the clients maintained continuous membership over a 3 year period. Some of the factors responsible for the turnover and shrinkage are: the low incomes of subscribers in proportion to costs, limited services offered, particularly where the plan is confined within a rural county, and loss of doctors to war service. Some plans have closed because doctors were dissatisfied.

Experimental plans—The Department of Agriculture undertook experiments with plans open to the entire farm population of five selected counties—one each in Georgia, Mississippi, and Alabama, and two in Texas. Charges were 6 per cent of the net cash income of each farmer, which represents the average proportion of farm income spent for medical care.[5] In order to provide complete service, the plans were subsidized by the government through nonprofit "local health associations" incorporated to administer the plans. Except for the rarer specialist services and more refined diagnostic procedures, service in home, office, and hospital is complete, including some dental care. In four plans, physicians are paid on a fee basis and in one by capitation.

The cost has been about $50 per family per year, and the subsidy required has been 81 per cent for the first year and 62 for the second. In spite of this heavy subsidy and the good "buy" offered, only *50 per cent* of the farm families ever enrolled in the plans. This is a striking commentary on the validity of the suggestions now being made that voluntary health insurance

be allowed to solve the problems of paying for medical care.

Illnesses treated per year ranged from 1,022 to 1,964 per 1,000 persons, which is two to four times the 526 reported in rural areas by the U. S. Department of Agriculture.[6] This may mean that the 50 per cent who enrolled were the less healthy, which in itself is an argument for compulsory enrollment and spreading of the cost over the entire population.

The deficiencies in these plans are pointed out in the department's recently issued report.[6] Their failure to improve quality of care or distribution of physicians and health facilities parallels that of the community medical plans. They provide a better method of paying for whatever service happens to be available in the community, and that is all. The department considers definitely that only a compulsory health insurance program which draws financial support from all the people and which can draw for service on a medical trade area large enough to support the best specialist services and hospital facilities will solve the problems of rural health care.

SUMMARY AND CONCLUSIONS

Medical service plans cover an estimated 10 million persons in the country and may be classified in five main groups: (1) commercial insurance, (2) industrial, (3) private clinic and consumer sponsored, (4) medical society, (5) rural (U. S. Department of Agriculture).

They vary as to population covered, services rendered, costs and financing, organization of services, and utilization. The majority are concerned principally with the financial aspects, rather than quality and efficiency of care and its extension to areas and groups not now served. Group practice units furnish the best and cheapest care.

As a result of limited services, cost, geographic restrictions, and other factors, the majority of the population eligible does not enroll in available plans. Widespread distribution of modern medical service to all the people on a prepaid basis cannot be achieved without improved organization of services through group practice with cost spread by obligatory enrollment of the population and financial support through the taxing power of the federal government. This requires insurance combined with general taxation, as recommended last year by the A.P.H.A.,[7] and on November 19 by President Truman.

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Milk-borne Disease in Massachusetts 1941-1945*

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THE previous chronological reports on this subject from Massachusetts have all been compiled for peacetime years. It was decided, therefore, to compile one report in a wartime year in order to show the impact of the shortage of personnel and the generally disturbed conditions upon certain phases of the controls exerted upon the sanitation of the milk supplies. In spite of the handicaps of war conditions, the impetus of previous educational programs and the high standard of procedures in milk production, added to the new stimulus of inspections by the armed forces, brought the level of communicable diseases spread by milk to a new all-time low in the state.

CHANGES IN CONSUMPTION AND CONTROL

As in previous surveys, questionnaires were sent to 187 of the 351 communities in the state. The remaining 164 all had populations of less than 2,500, and little information can be obtained in regard to milk supplies. Replies were received from 162 of the 187 communities.

In the previous report published in 1941,[1] it was noted that there had been a small but gradual decrease in milk consumption since 1928. It is encouraging to find that this downward trend has been reversed. The per capita consumption for 1944 is computed to be 0.51 quarts per day as compared to 0.42, 0.44, 0.45, 0.50, 0.46 and 0.56 in the years 1942, 1931, 1928, 1926, 1923, and 1919 respectively. The increase probably was not as much as appears since no adjustment has been attempted for wartime changes in population. In Massachusetts, however, this has been limited largely to the military personnel present within the state.

There has been a further increase in the amount of the pasteurized milk consumed. It will be seen from Table 1 that this increase has been progressive since 1919, the date of the first chronological report. It will be noted that the 162 communities from which questionnaires were received in 1944 represent 92.5 per cent of the population of the state, and that 96.4 per cent of the milk sold in these communities is pasteurized.

TABLE 1

Increase in Per cent of Milk Pasteurized in Communities Answering Questionnaire

Massachusetts

	Communities Answering Questionnaire		*Per cent of Milk Consumed Which Is Pasteurized*
Year	*Number*	*Per cent of Pop. of State*	
1919	..	61.0	34.0
1923	41	65.0	74.0
1926	43	70.2	83.0
1928	95	83.0	85.7
1931	90	83.4	89.7
1939	143	90.0	92.4
1941	162	92.5	96.4

* *Eighth Chronological Report* from the Massachusetts Department of Public Health.

TABLE 2

Per cent of Milk Pasteurized in Communities Answering Questionnaire by Size of Community

Massachusetts

Population Group	*1923*	*1926*	*1928*	*1931*	*1939*	*1944*
50,000 and over	82.3	91.6	93.0	96.1	99.5	99.7
25,000–50,000	65.1	63.9	84.5	89.5	95.0	99.0
15,000–25,000	43.4	35.6	61.2	80.0	85.0	97.1
10,000–15,000	10.8	34.1	62.1	59.8	75.4	84.8
5,000–10,000	.... *	....	51.9	55.3	65.0	81.3
2,500– 5,000	.... †	....	....	....	58.5	79.4

* Questionnaires were not sent until 1928.
† Questionnaires were not sent until 1939.

The larger communities have consistently reported higher percentages of milk pasteurized (Table 2). Even in the smallest communities, almost 80 per cent of the milk is protected by pasteurization.

In the sixth chronological report [2] an estimate was made of the milk pasteurized in all of the communities of the state for 1931, based upon the reports of the ninety which had answered questionnaires. Such an estimate was made also for 1939 in the seventh chronological report. Using a similar method of calculation, an estimate was made for 1944. This estimate shows that almost 95 per cent of the milk sold in the state is now pasteurized, compared to 85 and 90 per cent in the two previous reports.

One reason for the high per cent of milk pasteurized is that between 1928 and 1941 there was a continuous move on the part of the larger communities in Massachusetts to pass regulations requiring the pasteurization or certification of all milk sold. During the war years the shortage of pasteurization equipment made it impossible to proceed further along this line. However, by the end of 1945, 85 communities representing 79.2 per cent of the population of the state had put regulations of this kind into operation. Only one community of over 25,000 population does not now have such a regulation, and 31 of the 46 with populations between 10,000 and 25,000 have taken such action. As soon as pasteurization equipment is again available, the efforts to have such regulations passed will be resumed.

In order to appease those who object to pasteurized milk, regulations in Massachusetts have usually recognized certified milk as the only raw milk

TABLE 3

Per cent of Communities Answering Questionnaire Which Make Bacteriological Examinations

Massachusetts

Population Group	*1928*	*1931*	*1939*	*1944*
50,000 and over	94.1	100.0	100.0	87.5
25,000–50,000	63.6	61.5	81.2	81.3
15,000–25,000	63.7	76.4	71.0	70.8
10,000–15,000	60.0	52.9	70.0	61.9
5,000–10,000	30.0	46.2	48.6	39.0
Total	57.9	65.7	68.3	61.9
2,500–5,000	.... *	....	42.4	34.1
Total			62.5	54.7

* No questionnaire sent until 1939

TABLE 4

Bacteriological Examinations of Milk by Communities Answering Questionnaire 1939 vs. 1944

Population Group	Quarts of Milk Sold per Day		Total Bacteriological Examinations		Examinations per 100,000 Quarts of Milk Sold	
	1939	1944	1939	1944	1939	1944
50,000 and over	919,146 *	1,162,651 *	43,575	37,389	13.0	8.9
25,000–50,000	285,261	312,865	15,792	6,839	15.2	6.0
15,000–25,000	181,764	215,425	5,048	3,483	7.6	4.5
10,000–15,000	111,141	123,583	1,406	913	3.5	2.0
5,000–10,000	93,791	150,076	3,858	2,630	11.3	4.8
2,500– 5,000	46,609	77,228	3,317	2,466	19.5	8.8
	1,637,712	2,041,828	72,996	53,720	12.2	7.2

* Multiply by 365 to give quarts sold per year

which could be sold. Such milk is a very small problem in Massachusetts since all certified milk represents only about 0.65 per cent of the total milk sold, and more than three-quarters of this is pasteurized by popular demand.

The impact of disturbed work conditions showed its greatest influence upon the inspections and laboratory examinations of milk. Table 3 shows that there has been a decrease in the number of communities which make bacteriological examinations. This is also reflected in the number of examinations carried out per hundred quarts of milk as shown in Table 4. The fluctuations have varied with the size of the community, but there has been a general decrease from 12.2 examinations per 100,000 quarts in 1939 to 7.2 examinations in 1944.

It may be that this does not represent the true picture because rapid changes in personnel have made record keeping difficult, and some communities may not have reported the true number of examinations which have actually been carried out.

There has been a similar decrease in the total number of inspections by local health department personnel as shown in Table 5. The largest decrease has been in the communities with the largest and smallest populations. There was a greater decrease in the number of inspections of dairy farms than in the inspection of milk plants and pasteurization plants. These decreases

TABLE 5

Inspections of Milk Farms, Milk Plants, and Pasteurization Plants by Communities Answering Questionnaire

1939 vs. 1944

Population Group	Total Inspections		Inspections per 100,000 Quarts of Milk Sold	
	1939	1944	1939	1944
50,000 and over	23,336	10,469	6.9	2.4
25,000–50,000	4,722	6,045	4.5	5.3
15,000–25,000	6,679	2,945	10.1	3.8
10,000–15,000	2,425	1,877	5.9	4.2
5,000–10,000	3,908	2,342	11.4	4.3
2,500– 5,000	3,334	986	19.5	3.5
	44,404	24,664	7.5	3.3

have been somewhat compensated for by some increase in inspections by our department together with the additional inspections which were made during wartime by the armed forces.

The decrease in both bacteriological examinations and inspections is due in part to the decrease in the number of milk farms, milk dealers, milk plants, and pasteurization plants during the war period. Many small operators found that more could be made in war work than in the milk business. The number of inspections and examinations will have to be increased once more when some of the small operators again set themselves up in the milk business.

The reports for 1944 indicate that there has been some decrease in number of goats and the number of quarts of goats' milk sold. In 1938, 1,082 goats were reported by 143 communities as compared with 850 reported by 162 communities in 1944. The amount of milk sold had dropped from 639 quarts to 621 quarts per day.

Milk inspection work was carried out by full-time employees in 39 of the 162 communities which answered the questionnaires. In some instances the employees performed other duties for the board of health. Eighty-six of the communities have a part-time milk inspector and only 37 have no milk inspector; 35 of the latter were in communities of under 10,000 population, and 26 in those under 5,000 population.

OUTBREAKS TRACED TO MILK

The fact that only three milk-borne outbreaks have been reported in Massachusetts during the last five years is good evidence that the milk supplies of the state are being well protected. With the disappearance of large outbreaks of milk-borne diseases, the most potent reason for using pasteurized milk at the present day has been the continued occurrence of sporadic cases of undulant fever among the comparatively few users of raw milk in the state. In earlier years septic sore throat, typhoid fever, and scarlet fever spread by milk exerted the greatest pressure to swing from raw to pasteurized milk. In Table 6 it will be noted that the number of outbreaks, the total number of cases, as well as the number of cases per outbreak have continued to decline.

The milk-borne outbreaks which have been reported since the last chronological report are listed in Table 7. For

TABLE 6

*Total Reported Outbreaks and Total Cases of Milk-borne Disease **

Massachusetts

Period	Outbreaks		Cases		Cases per Outbreak
	For Period	Per Year	For Period	Per Year	
1886–1890	3	0.6	104	20.8	35
1891–1895	4	0.8	224	44.8	56
1896–1900	15	3.0	308	61.6	21
1901–1905	20	4.0	410	82.0	21
1906–1910	28	5.6	2,878 †	575.6	103
1911–1915	45	9.0	4,255	851.0	95
1916–1920	32	6.4	1,287	257.4	40
1921–1925	17	3.4	444	88.8	26
1926–1930	14	2.8	1,659	331.8	119
1931–1935	7	1.4	220	44.0	31
1936–1940	4	0.8	331 ‡	66.2	83
1941–1945	3	0.6	75	15.0	25

* Includes typhoid fever, diphtheria, gastroenteritis, scarlet fever, septic sore throat, and undulant fever.
† First period in which septic sore throat was included. The large figures in this period, however, are due mainly to milk-borne scarlet and typhoid.
‡ First period in which gastroenteritis and undulant fever were included.

TABLE 7

List of Outbreaks Traced to Milk

Massachusetts

1941–1945

Year	*Month*	*Place*	*Disease*	*Cases*	*Deaths*	*Source*	*Milk Past. or Raw*
1941	Mar. Sept.	Leominster	Undulant Fever	16	0	Infected Herd	Raw
1942	None						
1943	Sept.	Rowley	Scarlet Fever Septic Sore Throat (Hem. Strep.)	46	0	Case *	Raw
1944	Sept.	Fall River	Sonne Dysentery	13	0	Case †	Past.
1945	None						

* Milker had sore throat and rash.

† The milk producer and distributor (who supplied milk to the school where the outbreak occurred) and his daughter had gastroenteritis and positive cultures for Sonne dysentery. The milk was delivered in large cans with paper caps.

the first time since the beginning of these reports, no deaths have occurred among those affected in milk-borne outbreaks.

DISCUSSION

It is encouraging to discover that the consumption of milk has once more increased in Massachusetts. A part of this is undoubtedly due to the great emphasis upon nutrition during the war period. Without doubt, it has also been partly due to the shortage of other protein foods.

Milk continues to be one of the safest foods consumed in Massachusetts. Even in the disturbed wartime period, milk-borne disease has remained at a low level, when other food supplies have come under great suspicion.

The return of peacetime conditions should make it possible to resume the passing of regulations requiring pasteurization and certification of milk. Already almost 80 per cent of the people of the state live in communities where certified milk is the only variety of raw milk which can be purchased.

SUMMARY

1. Milk-borne disease continues to decrease in Massachusetts. Only three outbreaks have been traced to milk during the last five years.

2. There has been a further increase in the per capita consumption of milk since 1939.

3. It is estimated that almost 95 per cent of the milk consumed in this state is pasteurized.

4. There was some decrease in the number of bacteriological examinations and the number of inspections by local personnel during the war years. This was in part compensated for by inspections made by other agencies.

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NOTE: The author is indebted to the district sanitary officers for valuable assistance in obtaining the coöperation of milk inspectors and local boards of health in filling out the questionnaires from which this report was compiled.

Three Health Education Projects—A Critical Analysis*

INCLUDED in the two day Victory Meeting of the New York City Public Health Association, was a session devoted to a critical analysis of three health education projects. In opening the meeting Chairman Paul H. Sheats, Ph.D., Educational Director of Town Hall said, "I assume that the common ground of interest which brings us together, despite the specialized nature of the jobs we are doing, is a recognition of the fact that the success of our respective programs depends upon the skill with which we develop programs of community education. The approach we are making here is a very practical one. Instead of a discussion of theories the Program Committee has wisely planned reports of three widely different, widely varying educational programs. On the basis of those reports we shall discuss some of the tentative generalizations and conclusions that can be drawn with reference to good principles and procedures in the field of health education.

"One of the most difficult areas for work in the field of adult education is the large metropolitan community. Many sociologists have long been interested in efforts to organize neighborhood groups and develop, once again, the sense of belonging and of participation in community affairs that characterized the early American community.

"Our first speaker is to give a report on such a program. Dr. Jerome Peterson, District Health Officer of the Red Hook-Gowanus Health Center of the New York City Health Department will present an interesting illustration of how some of the difficulties in a metropolitan area can be overcome."

Dr. Peterson: "My story is of an attempt to organize the residents of the Red Hook-Gowanus Health District for participation in a health program. The idea started about a year ago, when some of the people in the District came to the Health Center and asked us to contribute a weekly or monthly article to a newspaper published by their housing project. As we talked to them they became interested in health and health programs. At the same time, the manager of the housing project was interested in having something done along health lines for the 10,000 residents of the project.

"One by one we began to collect more persons who were interested: social workers, recreation people, and members of lay organizations, such as the Service Council and Civic League. They were interested in health, but they were also interested in recreational problems, child care centers, more libraries, better transportation, and better housing outside of the project. Therefore, instead of trying to organize only for health, we decided it might be more effective to organize for all these things in which they were interested. We of the Health Department and the Health Education Service would participate not only in health, but in all the projects.

* Summary of a Panel Session arranged by the National Publicity Council for Health and Welfare Services, Inc., and presented before the Victory Meeting of The Public Health Association of New York City in collaboration with the American Public Health Association, New York, N. Y., December 13, 1945.

"Out of this grew a Neighborhood Council. It was constituted about equally of professional and lay people. The interest was fairly keen among a small group, but we realized that if we really wanted to get down to the grass roots we would have to get the interest of hundreds and thousands of residents (about 20,000 people live in the District). So we asked what they would like to start, in the hope that a project would crystallize the feeling. They were interested in a health subject, probably because we were the instigators or prime movers, and because a program of health was the easiest to start.

"An x-ray survey was decided on as the first program. It was our job to interest the people in getting their chests x-rayed. The way we did that formed the organization pattern of the Council. The Chest X-ray Committee as set up was constituted entirely of laymen; the chairman and co-chairman were housewives. There was professional guidance, but they did the work.

"They started by getting neighborhood representatives. These representatives were to go to the various apartments in the housing project and house by house outside the project, telling people about the Neighborhood Council and the x-ray survey. In signing up people for chest x-rays the emphasis was on the fact that this was a project of the Neighborhood Council.

"There were a number of superstitions or reluctances to overcome. Some feared they might be moved out of the project if they were found to have tuberculosis. Others feared a scheme to get their homes away from them, because it had been rumored that the City wanted to expropriate the land in connection with the development of a tunnel for the Belt Parkway. In the main those objections were overcome.

"About a hundred people served as neighborhood representatives, popularizing the idea of the x-ray survey. They were fairly successful. They showed movies, had pep rallies and radio broadcasts, and put up posters. Those techniques are not what I am interested in now. What I am interested in is that the people themselves planned and carried out the program. They proved that a community council could function.

"After the survey the problems of recreation were taken up but that is not part of my story, except to say that we in the Health Department continued to help in this and will continue to help in whatever field of interest they choose.

"Another part of the District had a large diphtheria problem. Some community action was obviously needed. Again we went to community leaders—a lawyer, some ministers, a candidate for judge, schoolteachers—and asked them to come and talk it over with us. Out of the talk developed a lay committee of twenty-five housewives, who undertook the job of going around among their friends and clubs urging the immunization of preschool children. Thus was laid the foundation for what we hope will become a Neighborhood Council in that district.

"In the meantime, two or three other groups have caught the same idea and want to organize a Neighborhood Council and develop similar programs. All this does not happen by itself. One needs some personnel and a lot of work. Very little money is involved.

"We were fortunate in having the interest of the U. S. Public Health Service in this sort of community cooperation. They were foresighted enough to supply us on a year-and-a-half basis with the services of a health educator, a well trained young woman who did practically all the leg work for us. At the same time, the City Health Department has coöperated throughout the program.

"Also, we had the coöperation of the various agencies in the community.

The Council of Social Planning in Brooklyn assigned a worker to coöperate with us. This trained help has been of invaluable assistance. We were fortunate, too, in having a number of students from schools of public health and social work who were assigned to us for field work.

"Our experience has shown us that seemingly uninterested communities can become interested in their own welfare to the point of effecting an organization which enables them to work out some of their own problems. The District Health Center has found a new ally in the Neighborhood Council and this working together should lead to improved public health."

Dr. Sheats: "We have always found in programs of adult education, that self-interest is one of the most important motivating drives in getting public interest and participation. In that self-interest factor, the vocational interest of the individuals is extremely important.

"The next report indicates what is being done in New York City in a health education training program for food handlers. I am very glad to present as our second speaker Mr. Edwin Ludewig, Acting Director, Bureau of Food and Drugs, Department of Health, New York City."

Mr. Ludewig: "The Bureau of Food and Drugs of the Department of Health of New York has the responsibility for the sanitary supervision of approximately 100,000 retail and 5,000 wholesale food establishments, as well as the necessary control work in pasteurizing plants, milk receiving depots and dairies throughout the milk shed supplying the city. This responsibility is undertaken by seven veterinarians and 170 inspectors, of whom 30 are assigned to the country.

"The food handler must understand not only his job but his responsibilities to public health as well. If we can obtain the intelligent coöperation of the food purveyor in the conduct of his establishment, and enable him to understand our viewpoint, it is of great aid in the enforcement of sanitary regulations. This can be accomplished by a food handlers' training program designed to inform him about the Health Department regulations and his responsibility in maintaining a clean establishment and preventing the transmission of disease. The Bureau of Food and Drugs has undertaken this training in three ways:

"1. The formation of committees of operators of restaurants, hotels, groceries, and food processors
"2. A lecture program for large groups of food handlers
"3. Evening courses in food sanitation of from 32 to 60 hours

"In 1943, when difficulty in maintaining sanitary conditions in restaurants due to the shortage of experienced personnel became acute, a conference of operators of chain restaurants called by the department resulted in the formation of a 'Public Health Committee of the Soda and Luncheonette Industry.' Representatives of each of twenty chain restaurant organizations met once a month in the Department of Health building to discuss ways of maintaining good sanitary conditions in their establishments.

"Lectures on rodent control have been given to which maintenance superintendents of these organizations were invited; a brief mimeographed outline of the rodent control program was distributed. Other lectures on dishwashing, refrigeration, housekeeping, sanitary construction of equipment, the necessity for self inspection, etc., have been provided. The members receive reports of inspections of their establishments, thus expediting the correction of unsanitary conditions. This committee has been functioning for over two years and the interest of its members has been

unflagging. Similar committees have been set up in other branches of the restaurant and grocery industry and in the Coney Island and Rockaway summer resort areas.

"Because the members evinced great interest in training courses for food handlers, the department set up a lecture demonstration of 1½ hours for the benefit of the supervisory as well as the rank and file personnel. This lecture on 'Restaurant Sanitation' is accompanied by 110 slides and is followed by the educational motion pictures, 'T'wixt the Cup and the Lip' and 'Slingin' Hash.' At the start, the food handler is made aware of his responsibility to public health and shown that disease is transmitted through definite channels from an infected to a healthy person by bacteria. The channels of transmission: hands, nose, mouth, rodents, flies, roaches, equipment, and eating utensils are thoroughly explained. The lecture is concluded by reviewing the salient precautions to be observed in good food handling procedure.

"Five or six lectures a month are held in the Department of Health auditorium accommodating 165. They are held also at hospitals, institutions or hotels where groups of food handlers can be assembled. At the conclusion of the lecture each person receives the booklet *From Hand to Mouth*, published by the U. S. Public Health Service and reprinted by the New York City Department of Health. During the year 1945, a similar lecture program was conducted at wholesale food manufacturing establishments.

"The members of the chain restaurant industry committee are responsible for sending a definite number of employees to the lectures. In addition, all new applicants for permits to conduct restaurants, bakeries, or frozen dessert establishments are required to attend. Approximately 500 such applicants apply for permits each month, and a notice to attend is delivered by the inspector during his routine inspection of the establishment a few days after the application is signed. As might be expected, the reactions to those lectures are varied, but we are informed by the supervisory personnel that employees often demonstrate the principles they have learned to their coworkers who, in turn, are stimulated to attend future lectures.

"Since the start of the organized lecture program in January, 1944, over 13,000 food handlers of retail establishments and approximately 2,500 employees of wholesale establishments have attended. At present about 1,000 food handlers a month are attending and the program is being constantly expanded.

"In 1942 a provision was added to the *Sanitary Code* requiring that 'the operator of every wholesale food processing establishment shall engage the services of or have in his employ a qualified person who shall be able to make sanitary food inspections. Such qualified person shall make inspections of the establishment at not less than monthly intervals. His findings on these inspections shall be recorded upon a form approved by the Department of Health and shall be kept on file at the premises for a period of twelve months. Such inspection reports shall be open to inspection by representatives of the Department of Health at all times.'

"Enforcement of this wholly desirable objective has been impossible because of the lack of adequate training facilities for restaurant food handlers, though as far back as 1936 there have been satisfactory training courses for operators and personnel in the milk and frozen dessert field. After several years of effort by the Department of Health, the Board of Education approved the inauguration of free evening courses in food sanitation to be held at the Food Trades Vocational High School

starting October 1, 1945. The courses consist of two 2 hour sessions each week for a total of eight weeks and are open to any person employed in the food industry. There are no educational prerequisites.

"This food handlers training program of the Department of Health, embracing both lectures and films, will eventually reach a large percentage of the food handlers in New York City. While marked improvement has already been observed, it is difficult to measure the overall effect at this time. Not revolutionary results but evolutionary progress is expected. We feel confident that a broad foundation is being laid in developing a more intelligent understanding and approach on the part of the food dealer and his employees, which should result within the next few years in material aid to the department's inspection force through improved sanitary conditions and better public health protection in the manufacture and handling of food."

Dr. Sheats: "We have now had two reports from New York City, on widely different programs. I think you would be the first to agree that health education problems are greatly different in small, rural communities from those in metropolitan areas such as New York. We are asking our next speaker to talk to you particularly because of his connection with a rural program. He will report on cancer. I am glad to present Dr. Benjamin Feurstein, Director of the Tumor Clinic at Southside Hospital, Bayshore, Long Island."

Dr. Feurstein: "In 1934, the Suffolk County Cancer Committee established one of the first rural cancer clinics. Here are the steps necessary to establish such a clinic. Let me say first that education in itself is not an end; it is a means to an end. You are going to educate the community in order to try to reduce the death rate from cancer, but the education will be of no avail unless you provide facilities for treatment. Therefore, when we speak of cancer education in a rural or any other community, we include in that educational program a place where people can be treated.

"In the rural community, we call a clinic any institution which is composed of a group of doctors. In other words, this is a place where anyone, regardless of financial situation, can be examined and treated. In the diagnosis and treatment of cancer, one doctor alone cannot possibly do the job.

"The first step is to organize the Cancer Committee; second, to plan the education campaign; third, to have the doctors organize clinics for diagnosis and therapy; finally, to encourage close coöperation between the lay and medical committees.

"It is usually a simple matter to interest a few civic minded men and women in the formation of a cancer committee. All citizens are awake to the fact that cancer is our major health problem, and they are usually glad to join in the fight against it. We had no difficulty forming a lay committee in Suffolk and doubt that others will encounter any opposition. The committee must then plan its education campaign. Every means is used to bring before the public the war against cancer.

"Arrangements are made with local physicians to speak before civic groups such as Rotary clubs, parent-teacher groups, Masons, church groups, and the public schools. Occasionally we found some groups reluctant to have a speaker because 'a talk on cancer will frighten the members.' A club with a membership of 100 would have only 5 per cent present. But if the speaker presents his subject in an interesting manner, the word will spread and future talks will be better attended. We were told at the end of a meeting, 'We expected to come here and be scared,' and then

we were asked to speak to another group.

"We felt the program of educating children in public school was vitally important, but found that some school principals had to be convinced that children should be taught the facts about cancer, while some principals, strangely enough, refused. We finally got two or three to let us speak. They gave us recommendations to other principals, and in this way we worked our program into the public schools. In general, however, organizations will coöperate and the campaign will reach the ears of most of the citizens.

"The doctors must then be persuaded to organize a cancer clinic. They may prove to be the first big obstacles. We doctors are conservative and often quite stubborn. The most frequent objection raised will be that a clinic is not necessary in a rural community, since there are not enough cases of cancer to warrant one. The answer to this one is easy. Remind the doctor that cancer is the second commonest cause of death; there must, therefore, be sufficient cases to warrant a clinic in any community. But, no matter how few he thinks there might be, a disease which causes more deaths than any other except one must be fought with every possible weapon.

"A clinic to function properly must be fully staffed. Most communities can provide adequate medical personnel with the exception of a radiation therapist. X-ray and radium therapy are comparatively new fields in medicine and few doctors in rural communities practise this specialty. Yet they are essential in both the diagnosis and treatment of cancer.

"If there is no doctor in the community qualified to do radiation therapy, the medical staff should obtain the services of such a physician. The federal health agencies, for example, are granting fellowships in this field in larger hospitals throughout the country. Through proper channels the community can obtain the services of such a man. Some are anxious to do pioneer work in rural communities.

"Once a radiation therapist is secured, the establishment of a therapy clinic will involve the expenditure of only a moderate amount of money. Most therapy clinics, when efficiently operated, are self-supporting. It may be necessary for the local committee to subsidize the project by a grant of money to the hospital. Such financial aid is usually necessary for only a short time. Our experience in Suffolk County convinced us that almost any rural community can maintain a cancer clinic for diagnosis and therapy.

"Our county is 100 miles long and 15 wide, with a population of over 175,000 people. No village has a population of over 10,000, and the largest hospital has 100 beds. We started in 1934 with one diagnostic clinic, and then timidly organized a therapy clinic. Today we have three recognized diagnostic clinics, a fourth in the making, and two therapy clinics. Our greatest problem is getting sufficient secretaries to keep our voluminous records up to date.

"What Suffolk did was no miracle. We were fortunate in having in our community a woman of determination and vision who has blazed the path for other rural clinics. The job should now be easier for other communities.

"Carry this message to the rural areas; cancer is the second commonest cause of death; you cannot afford not to have a cancer clinic."

Dr. Sheats: "The primary purpose here is to try to draw from these three reports some of the educational principles involved and some judgment as to the most effective procedures used. We are calling on two experts in the field of social psychology and education to help us in making that kind of in-

terpretation. I would like to call on Mr. Lawrence K. Frank, Director of the Carolyn Zachary Institute of Human Development, here in New York."

Mr. Frank: May I suggest the following possible subject for discussion: Dr. Peterson, of the Red Hook-Gowanus Center, brings out very clearly the difference between dissemination and communication. Dissemination is one thing—to hand out pamphlets or broadcast radio programs which may or may not make contact. We have neglected the recipient whose receptivity is established by beliefs, feelings, and cultural tradition, which may largely, if not completely block communication. It can be likened to a group of people who are not tuned in on your station. They will not listen, or will not hear what you have to say.

"The significance of Dr. Peterson's program is that he starts, not primarily with health, scientific knowledge, and medical teaching, but with people. He recognizes the disappearance of the older assumptions, values, and goals, which at one time made the American people more or less homogeneous, and realizes that people are filled with perplexities, that they are often living lives of quiet desperation. People are confronted with so many conflicting demands of jobs, families, housing, transportation, and all the other difficulties of life that their lives are filled with frustration, both internal and external.

"When we start with people, rather than with subject matter, or materials or media, we begin to be occupied with a problem not of teaching, but a problem of learning. The problem of learning is one that involves a great many aspects of the personality; the way an individual feels about life and about himself; of giving him reassurance instead of relying upon threats of what is going to happen.

"Second, it seems to me we are seeing something of major significance in the food handlers program, namely, the realization that we must make each occupational group in our highly diversified society aware of what their normal activities mean for the welfare of the whole. That means the problem of giving the activities of each individual, no matter how insignificant they may seem or how lowly in the scale of occupations, the significance and meaning of what he is doing in the maintenance of social order and health; that is, giving him a source of personal achievement and satisfaction in participating and helping to maintain society.

"May I suggest that what we call 'morale' is just that capacity which each individual brings to each situation, each relationship, each activity contributing to social living, and investing it with a meaning and significance which takes it from the professional objective to the human objective.

"That is what I take it this program is doing. It is significant because that is what must be done—in such a way that each individual becomes aware of what he contributes, or fails to contribute to human conservation and health.

"That is the kind of morale that every mother has to have in order to maintain good food on the table and to make her chores meaningful. It is a factor in medicine. It makes every patient, no matter what his condition, a subject of concern to the doctor.

"How can we maintain that morale, in order to have all people become active participants in health care? Is that not the problem we have to face?"

Dr. Sheats: "Our second commentator is Mr. Charles E. Hendry, Coördinator of Research, The Commission on Community Inter-Relation, in New York."

Mr. Hendry: "We have had three very impressive reports of health education in action on the community front. I rather feel, with Mr. Frank,

that there is a thread running through all three of these experiences. I would use the word 'involvement' as designating the essential element that we are trying to examine here—how to involve people in making responsible decisions to improve health education and health services.

"There are three basic points that I would like to suggest, and I think they apply to all three reports:

"First, we must start with a reality basis, reality involvement, as a prerequisite to effective social action.

"Second, facts presented by an expert, whether he be a health educator or what-not, do not carry with them an obligation to act.

"The third point is that involvement, at all major functional levels is essential because there is interdependence between functionaries. The two great functionaries concerned here are the health service on the one hand, and the people themselves on the other. It is necessary to have that involvement at different functional levels, because ultimately, unless they are all involved, you do not have the reinforcement that is necessary to put a program across.

"I will discuss each one briefly. First, the reality basis: in the first project reported, I was much interested in how it got started. There was an element of spontaneity that made it real. It concerned a specific, concrete, relatively simple expression of need and interest on the part of citizens who had become aware of some need.

"In the second place, the nature of the relationship established there, between the health educator, the community organizer, and the citizens in that housing project, was more important than the nature of the activity in which they were engaged. That relationship, you will recall, was direct, personal, almost casual and informal. It went along at an easy tempo—the tempo of the people, not the accelerated tempo of the expert, who had the answers all ready with him and, probably, in his impatience, wanted to go much faster. That illustrates the point about the reality basis.

"Now, on the next point, facts for action, rather than facts for presentation. You notice that in the housing project the use of citizens made it possible to break down the fear of facts, the fear of even gathering the facts, and the antagonism to the process of gathering the facts. That was solved by the citizens themselves gathering the facts.

"In dealing with the second report on food technology, there was an interesting point. I wonder if we got it. That is, that the food inspections were made by the food handlers themselves, in the establishments, and were placed on file for twelve months, and that those reports, made by the management, were used by the examiners, or sanitary 'policemen.' There was a case of involving those that you wanted to influence, by getting the facts themselves, which would help to orient them. That is a very neat point.

"Great emphasis was placed on the lecture method, and while the movies, movie strips, slides, 'sling-the-hash' booklets, and all the rest, were employed to give it a little vitality and 'oomph,' I wonder if it was the most effective method. There have been several experiments recently, one in this very field of food habits, which I believe are pertinent here. When the war broke out Margaret Mead was placed in charge of a food habits project in Washington. Out in Iowa, they took four groups of women to conduct an experiment in how to change food habits. First, they had a lecture by an expert in home economics; second, they had group discussion; third, they had group discussion but brought in the expert; fourth, they had group discussion leading to group decision. When the results were measured, it was found that 8 per

cent changed their habits on the lecture, 11 per cent on the discussion, 13 per cent on the discussion with the expert, and 38 per cent on the group discussion plus group decision. That is something to think about.

"Finally, the remaining point is the involvement of functionaries at different levels, from the consumer right up the professional scale, getting the prestige groups, the authoritative expert groups, and the consumer group all involved in the process, so that instead of looking askance at one another they feel a mutual responsibility, actually, and build together."

Best Sellers in the Book Service for June

Basic Principles of Healthful Housing. American Public Health Association. 2nd ed., 1939	$ .25
The Control of Communicable Diseases. American Public Health Association. 6th ed., 1945	.35
Hidden Hunger. Icie G. Macy, Ph.D., and Harold H. Williams, Ph.D., 1945	3.00
Local Health Units for the Nation. Haven Emerson, M.D., 1945	1.25
Municipal and Rural Sanitation. V. M. Ehlers and Ernest W. Steel. 3rd ed., 1943	4.50
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and THE NATION'S HEALTH

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THE ENGLISH SCHOOL HEALTH PROGRAM

IN general, the special Review Articles published in this *Journal* are critical summaries of progress in some specialized fields of public health, with citations of the most important literature in the field. In the present issue, we are inaugurating a new type of Review Article (which we hope to repeat as occasion offers)—an analysis of current practice in some particular type of public health service in a foreign country. We believe that information of this kind may be of the greatest value, since only by pooling the experience of expert knowledge and experience in every land can the best solutions of our common problems be found.

The first Review Article of this type by Dr. J. E. A. Underwood, Senior Medical Officer of the British Ministry of Education, on "School Health Service in England and Wales" is particularly timely. In an earlier editorial[1] we have pointed out the grave shortcomings of American practice in this field; and we still believe that medical service for the child of school age is the weakest link in the chain of public health practice in the United States.

The first thing which is impressive in the English program is the full and unqualified acceptance of responsibility for the actual amelioration of the defects found in the school health examination. The Education Act of 1918 imposed upon the school authorities the treatment of certain specified conditions; but the Education Act of 1944 goes much further in placing a duty on local education authorities "to provide or otherwise secure all forms of medical treatment for children in schools maintained by them, with the exception of treatment in the pupil's home and certain forms provided by other public medical services, e.g., infectious diseases, tuberculosis. Such treatment must be given without cost to the parents."

The second striking point in the English scheme is the complete and effective coördination between health and educational authorities. In 1919, the powers and duties of the Board of Education with respect to medical inspection and treatment of school children were transferred to the Ministry of Health. It was,

however, provided that the Minister of Health could delegate these powers and duties to the Board of Education. This has been effected by designating the Chief Medical Officer of the Ministry of Health as also Chief Medical Officer of the Ministry of Education. On the local level, in all 63 counties and 80 out of 83 county boroughs, the Medical Officer of Health also serves as School Medical Officer. By this coöperative arrangement, the chaotic gaps and conflicts between boards of health and of education so common in this country are eliminated. The total amount of time devoted by medical officers and assistant medical officers to the school program is equivalent to one full-time physician for each 6,900 pupils. In addition, some 800 specialists (ophthalmologists, dentists and orthopedists) are employed on part-time.

English practice—like that in intelligent American communities which are not handicapped by senseless laws requiring annual examination—involves three complete routine health examinations during school life, with such examinations on referral as may be indicated. Routine inspections totalled over a million, and special examinations and re-inspections nearly three millions, for five million children. The dental program provides, in theory, for an annual examination and treatment as required. This ideal has not as yet been attained. In 1945, about 59 per cent of all children actually examined needed dental care and 66 per cent of those requiring care received it.

In addition to the doctors, dentists, and nurses employed in routine school work, there are extensive in-patient and out-patient orthopedic services (as in our Crippled Children's Program); special clinics for speech defects, rheumatic conditions, nutritional conditions, etc.; and, above all, child guidance clinics have been developed during the war for dealing with emotional problems of childhood. Finally, Dr. Underwood's discussion of correlated health and educational provisions for the care of handicapped children contains many suggestions which should be of value to specialists in this field.

It is in no way suggested that American communities should take English practice as a detailed blue-print for our own activities. Some of the policies may be unsound—though the writer of this editorial does not detect any fundamental unsoundness. Others may be entirely wise but inapplicable at present to the riotous individualism of local self-government in the United States. We do believe, however, that the English program suggests goals we should strive by locally appropriate procedures to attain.

Above all, we would emphasize the inspiring spirit of practical coöperative effort manifest in this—as in so many other phases of British statesmanship. The vital social and political issue of the present day is the proper balance between individual initiative and coöperative social effort. The world of the future swings between the two poles of extreme Soviet Socialization and extreme American Anarchy. Such violent manifestations of individual and group selfishness as have paralyzed the social and industrial life of the United States during recent months cannot possibly continue. Benjamin Franklin is quoted as saying in a critical hour, " If we don't hang together, we shall all hang separately." The individualism which we prize—and which is for us the ultimate object of society—can only survive if liberty is controlled by a sense of social responsibility.

REFERENCE

1. The Test of King Solomon, Editorial, *A.J.P.H.*, 35:1222 (Nov.), 1945.

THE MERIT SYSTEM OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

THE 1939 Amendment to the Social Security Act gave to the United States Children's Bureau power to require of the states to which the Bureau makes grants-in-aid the "establishment and maintenance of personnel standards on a merit basis." With a similar requirement written into the regulations of the U. S. Public Health Service, this law has provided the most powerful stimulant to the development of expert competence in the public health services of the nation. It extended the principles of civil service to large areas where they had before had no application; and it did so, not by detailed legal enactment, but by regulations—a procedure contributing to a maximum of efficiency and flexibility.

In order to make such a program operative, it was recognized that examination material of the highest caliber was essential, and the Children's Bureau and the U. S. Public Health Service turned to our organization of professional public health workers for the development of appropriate techniques. For this purpose, the Merit System Unit of the American Public Health Association was established; and the first examination (for public health nurses) was prepared for the State of Arizona in July, 1942.[1] For various reasons it was decided to develop objective material, and the multiple-choice type of question with a premise which states the problem and five choices, one and only one of which is correct, has been used almost exclusively. A typical question is:

Which one of the following conditions is usually the result of insufficient iodine in the diet?

1. Exophthalmos
2. Increased basal metabolism
3. Thyroiditis
4. Toxic goiter
5. Simple goiter

The scoring of an examination consisting of items of this form is a clerical mechanical process and eliminates the subjective evaluations which characterize the scoring of essay questions. The multiple-choice form has proved highly satisfactory in our five years of experience.

In such a system, the first task is the preparation of a suitable reservoir of questions. These questions are originally prepared by professionals actively employed in public health work and in positions at levels comparable to those for which examinations are likely to be compiled. Dr. Atwater, who serves as Director of the Unit, calls these primary puzzle-posers, "constructors." Two hundred and twenty-four individuals have so far participated in this capacity. After preliminary instruction by staff members in the technique of question-writing, they are remunerated for each question accepted, items requiring the exercise of judgment earning a higher reward than those of purely factual significance. The use of persons actively engaged in public health work as item constructors has proved particularly valuable in avoiding the academic, textbookish flavor which so frequently characterizes examination material. All questions prepared by the "constructors" are next submitted in groups of fifty or more to "reviewers," specialists whose judgment is regarded as authoritative and of whom two hundred and twenty-three have functioned in this capacity. These reviewers contribute their services without compensation, and Dr. Lillian D. Long, Psychometrician of the Unit, considers that the outstanding thing which differentiates this testing program from all others is the extent of the services con-

tributed by representatives of the professional groups involved. To date, over 4,400 specific examination questions have been prepared in environmental sanitation, over, 3,300 in laboratory work, nearly 2,500 in nursing, over 800 in engineering, nearly 500 for health officers, and between 100 and 250 in each of the fields of vital statistics, medical social work, and health education.

The process is controlled at all stages by the participation of "consultants" of two types, consultants in the technique of testing procedures and consultants in the various fields of subject matter covered (nursing, laboratory work, sanitation, health administration, vital statistics, health education, and medical social service). When a request comes in for an examination, the job specifications laid down by the state or city are reviewed and the subject-matter consultant, in conjunction with the test-consultant, selects the series of questions best suited to appraise the knowledges called for by the particular job specifications and the known status and needs of the area in question.

The states receive from the Merit System Unit three copies of the examination, including instructions to the candidate, the answer booklet and the answer key—all ready for duplication by the state. The American Public Health Association makes this material available to the states only with the understanding that the state is not to release it or publish it in any form without the approval of the Association. This stipulation is necessary in order to safeguard the confidential nature of the examination material. The cost of an examination is related to the level of the position for which it is prepared and is computed on a non-profit basis.

To date, 190 examinations have actually been provided, including 94 in nursing, 50 in laboratory work, 30 in sanitation, and smaller numbers for health officers, medical social workers, health educators, vital statisticians, and nutritionists. Twenty-three states (Alabama, Arizona Delaware, Illinois, Idaho, Kansas, Kentucky, Louisiana, Massachusetts, Mississippi, Missouri, Nebraska, Nevada, New Mexico, Oklahoma, Pennsylvania, Rhode Island, South Dakota, Utah, Vermont, Virginia, West Virginia, Wyoming) have participated, as have three cities.

A final step in this process of developing diagnostic instruments for the selection of public health personnel is, in a sense, the most essential—namely, the evaluation of the effectiveness with which the preceding steps have been taken. A first approach to such an evaluation is the determination of the so-called internal consistency of the examination, or the degree to which the responses to the individual items agree in selecting the better as opposed to the poorer candidates. In order to determine whether this is the case, statistical analyses are undertaken to discover for each individual item whether the candidates who answered it correctly scored high on the whole examination, and whether the candidates who answered it incorrectly scored low on the entire examination. If the opposite situation should happen to obtain, that particular item would be considered as pulling against the discriminating work being done by the rest of the test and would, therefore, be considered unsatisfactory for use with this particular group of candidates. The difficulty level of the questions is also determined. Items which are either passed or failed by the entire group are useless as discriminators and probably should not be included again in examinations at this level. The reliability of the test, that is, the consistency with which it would rank the competitors in the same order if it were given more than once, is determined.

Furthermore, the Unit is now making continuing studies of the degree to which the examinations, as applied in the field, actually prove to be effective in measuring the qualifications of public health workers. The states have been cooperative in returning results to the Unit for analysis, and a number of experimental projects have been undertaken for evaluation purposes. Two hundred Visiting Nurse Association staff nurses were, for example, given a suitable examination and their scores were compared with supervisors' ratings. Six schools of public health nursing have given an appropriate examination to their students and compared scores with the students' final grades. Such investigations make it possible to say that the examinations prepared do, in fact, perform the task they are designed to perform—namely, to select the most highly qualified of the candidates and to rank examinees in order comparable to their ability as determined by some independent measure.

Out of the accumulating experience of the Merit System Unit have now emerged certain clear-cut goals toward which future activities of the Unit might profitably be directed. Among these are: extension of the Unit's services to city and county civil service systems to provide them with sounder bases for the selection of public health personnel; increasing the availability of examination material to schools of basic and special training in public health where it may be used as a tool for evaluating both students and curriculum; finally, and of major importance, enlargement of the Unit's services to the states to include duplicating, scoring, and analysis service, and the appointment of a field representative of the Unit whose function it would be to familiarize states with the services of the Unit, to strengthen the relationship between Merit System Unit agencies and official public health groups, and supply the Unit with information which would be valuable in the preparation of examinations.

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THE CENTENARY OF PANUM

IT is historically true that our modern theory and practice with regard to the control of communicable disease actually developed on the basis of Pasteur's laboratory studies of bacteriology. It is often forgotten, however, that the essential clues to an understanding of this problem had already been unravelled by three pioneers in field epidemiology before an epidemic among silkworms led Pasteur on from the study of fermentation to that of contagious disease. By 1860, Panum, Snow, and Budd had laid the basis on which a sound system of control would undoubtedly have been built, even if the germ theory had not been demonstrated by bacteriological experimentation.

In this connection Panum's work was less significant than that of his two English contemporaries because it dealt with a disease which had generally been accepted as contagious since the 14th century; although Sydenham never mentions its contagiousness and it was held by many that measles could at times arise spontaneously. It was, however, the intestinal diseases, typhoid and cholera, spread by water and in other indirect ways, which formed the real battleground between contagionists and miasmatists; and it was on this battle front that the victories of Snow and Budd were won.

Nevertheless, Panum's study was of major significance; and it was the first really complete and convincing contribution of modern field epidemiology. The occasion was an epidemic of measles in the Faroe Islands where there had been no cases of this disease for 65 years so that when infection was introduced in 1846, more than 6,000 of the 7,782 inhabitants fell victims to it. In villages where the epidemic occurred at all, 19 out of 20 persons were attacked. J. A. Doull estimates the total death rate at 23 per 1,000.[1]

Peter Ludwig Panum, before he had completed his full hospital training, was sent out with A. Manicus to study the situation. As Panum said in one of his later papers, "The circumstances under which the disease was observed were so favorable that similar ones were rarely, if ever presented to an observer." The largest community on the islands had only 800 inhabitants. In general, the population of the area was so separated in the coastal valleys of seventeen islands that each tiny settlement was an isolated community in which the history of the disease could be studied independently. Panum obtained complete data on the spread of the epidemic in fifty-two such areas. By observations repeated from village to village, he established the incubation period of the disease as 13–14 days. He concluded that infection had generally occurred when the primary case was in the eruptive stage. He was led by his observations to doubt the prevalent view that the period of desquamation was infectious, having failed to find a single case traceable to exposure after the disappearance of the rash.

Panum was inclined—though with some hesitation—to accept the spread of the contagion by clothing and other fomites; and he furnishes good evidence of the lasting immunity acquired in measles, having himself interviewed ninety-eight old persons who had had previous attacks and all of whom escaped in 1846.

Panum has no curiosity as to the nature of the infective agent—certainly no conception of a contagium animatum. He apparently holds to the conventional view of contagion as due to gaseous emanations—"exhalations from the patient which are strongest during eruption and on the first day of efflorescence, and the peculiar acidulous odor of which is most characteristic at this time." On one point, however, he was crystal clear. He says, "If among 6,000 cases, of which I saw and treated 1,000 myself, there was not a single one in which it was justifiable to attribute the affection to a miasmatic origin, while at the same time it was everywhere clear that the disease had spread from man to man and from village to village by means of the contagium (be it by direct contact with an ill person or by infected clothing and the like) then one is certainly justified at least to doubt very much the miasmatic nature of the disease."

Panum's later career was a distinguished one. He was appointed professor of physiology, medical chemistry, and pathology at Kiel in 1852, and later filled a similar post at Copenhagen. He was a pioneer in the laboratory study of physiology and pathology and made notable contributions to medical education. He was probably the leading figure in the Scandinavian medicine of his time.

Panum's claim to a place in the Valhalla of Medicine rests, however, upon his publication in Danish in 1846 and in German in 1847 of his "Observations made during the Epidemic of Measles on the Faroe Islands in the year 1846."[1] The episode would be hard to parallel in the history of medicine. Here was a boy just out of medical school who wrote one of the classics of our science. True, the opportunity was a unique one; but the way in which Panum utilized this opportunity was equally remarkable. The diligence and discrimination with which he collected his data and the logic and objectiveness with which he analyzed and

interpreted these data were well-nigh flawless. They could not have been improved upon by a Budd or a Frost at the height of his maturity. We do well to remember Peter Panum in 1946.

REFERENCE

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Fellowships for Engineers and Physicians

Announcement is made by Surgeon General Thomas Parran of the U. S. Public Health Service that a grant for the establishment of 125 Fellowships to train sanitary engineers and physicians in public health has been approved by the National Foundation for Infantile Paralysis. These fellowships are similar to those for health educators, announced in the May, 1946, issue of the *Journal.*

Each Fellowship provides a year's graduate training in a school of public health or a school of sanitary engineering. The Fellowships will be administered by the Committee on Training of Public Health Personnel, which consists of representatives of schools of public health, the State and Territorial Health Officers, the American Public Health Association, and the U. S. Public Health Service.

The Fellowships are available either during the academic year beginning in the fall of 1946 or the fall of 1947, and are open to men and women, citizens of the United States under 45 years of age.

The purpose of the Fellowships is to aid in the recruitment of trained public health engineers, health officers, and directors of special medical services to help fill some of the 300 vacancies for public health engineers and 900 vacancies in public health medical positions existing in state and local health departments over the country. The Fellowships are reserved for newcomers to the public health field, and are not open to employees in state and local health departments, for whom federal grants-in-aid are already available to the states.

Applicants for Fellowships may secure further details by writing to the Surgeon General, U. S. Public Health Service, Attention: Public Health Training, 19th and Constitution Avenue, N.W., Washington 25, D. C. Owing to the anticipated heavy enrollment in graduate schools, completed applications for training in the fall term of 1946 should be filed promptly. The awards committee will act on applications on the following dates: July 15 and August 1.

Credit Lines

THE WAR AGAINST SUBSTANDARD EDUCATION

With the title "Unfinished Business in American Education," the American Council on Education summarizes the results of a recent study into public school education as practised in the United States. The authors, John K. Norton of Teachers College, Columbia University, and Eugene S. Lawler of Northwestern University, have done a job that will be the envy of every publicity person in the health and welfare field.

In a 65 page pamphlet they have translated the substance of a two volume report *An Inventory of Public School Expenditures in the United States* into graphic form that both pleases the eye and enlightens the mind. Their first admonition is "Let us start another War"—against illiteracy and unequal educational opportunity, of course. They point out that equal opportunity is a myth when some children have the benefit of schools spending $6,000 per classroom unit and others of those spending $100 or less. Nor do they let the rich states rest on their laurels because they spend as much or more than the median. One chart relates effort to income or levels of support. Mississippi, for example, which has the lowest level of support of any state in the Union, far outstrips any other state in effort which is nearly five times as great as support. Rich states like New Jersey, California, New York, Pennsylvania, Ohio, Illinois, and Michigan, on the other hand, have a lower level of effort than of support.

This pamphlet and the book it summarizes are of immediate interest to public health workers; first because they portray conditions that are largely paralleled in public health, and second because they are an outstanding illustration of an effective means of focusing public attention on a problem.

CANCER EDUCATION IN A RURAL AREA

Credit Lines is indebted to Albert E. Heustis, M.D., M.P.H., Director of the Branch County, Mich., Health Department for the following example of a cancer education program in a rural area:

"Community planning for health education in the field of cancer has been uniquely demonstrated in a rural Michigan county. This is one of the earliest examples of physicians, lay groups, teachers, and school children working together in a coördinated rural program of cancer information.

"The idea originated with L. E. Davidson, publisher of the *Coldwater Daily Reporter,* who provided the financial backing. He sought the advice of the Cancer Consultant of the Michigan Department of Health, Dr. F. L. Rector, and asked the County Health Department to participate.

"A planning meeting was arranged and several interested citizens met with representatives of the County Medical Society. The consultant presented the idea of a continuing cancer education program and the Director of the County Health Department was elected general chairman.

"The objectives established were to induce those with suspicion of cancer to consult their own physicians early and to provide the doctors with help in the establishment of the diagnosis of early cancer.

"The first step was to tell the story of cancer—what it is and what can be done about it. This was designed both

to provide general information and to remove the fear which has so often stood in the way of an early diagnosis. It was directed at every person in the county through the schools and through others who could read or listen.

"The State Consultant prepared a series of brief, factual, understandable articles on "The Story of Cancer," which were prominently featured on the front page of our local paper. In addition, both the Consultant and the entire staff of the County Health Department made themselves available for group discussions. Our health educator was of great help in arranging the schedule. She canvassed community groups and worked through their program committees. The Farm Bureau, granges, service clubs, mothers' clubs, study groups, parent-teachers associations, and township organizations were brought into the plan. For the most part the talks given were illustrated with slides or movies, and in each case supplemental printed material was available for distribution.

"The libraries participated in the project by the display and circulation of cancer information.

"In the schools the program started with a series of five 2 hour illustrated talks for high school science teachers. These were later expanded to include anyone interested. Four of the sessions were given by the Cancer Consultant, the fifth by several members of the Medical Society.

"Next, in the school plan, came a number of single talks to high school students at assemblies and in certain classes. These were frequently illustrated, time was allowed for discussion, and printed material on cancer was made available to supplement the basic facts presented. Moreover, instructional units were given to high school teachers for use in their classes.

"The final step in the school program provided for distribution of literature on cancer to every student in every school. This material was intended for parents as well as pupils. Extra copies were made available for distribution to homes not represented by the school children.

"The portion of the program designed to help the doctors was developed into a Cancer Teaching Day. Cases suitable for operation and certain diagnostic problems were assembled by the local medical men and three qualified and capable specialists from the state university were invited to spend an entire day in the rural hospital. These included a gynecologist, a general surgeon, and an internist. The morning was given over to an operative clinic of three cases and ward rounds, while a general tumor conference of seven cases was held in the afternoon. In the evening, the visiting doctors presented illustrated talks on "cancer" at a dinner meeting of the Medical Society to which physicians from the surrounding territory were invited.

"The fine public spirit of the local newspaper publisher served both to crystallize public sentiment about the cancer problems and to focus it into an active, protective, participating program. It could not have been done as completely or as effectively without his genuine interest."

USING AVAILABLE YARDSTICKS

Two items in the 1945 annual report of the Montgomery County (Maryland) Health Department are significant as symbols of local application of yardsticks that have been developed by the Association to measure performance and stimulate its improvement.

The report says about tuberculosis: "Our participation in the *Evaluation Schedule* showed one glaring need in tuberculosis control—only 37 of the 80 active cases reported before death in 1944 were hospitalized. The record we are turning in for 1945 is 49 out of 65."

The shortage of public health nurses is graphically illustrated by two companion charts showing how many nurses would be required for the minimum of one nurse per 5,000 population, and how many the county provided for each year beginning in 1932. At that time there were fewer than one-fourth of the minimum standard, by 1941 more than half the minimum need were employed; at the peak in 1943 nearly three-quarters; in 1945 the number fell again to only slightly over two-thirds the minimum recommended.

MOBILE X-RAY UNITS

Illinois and Montana are among the states whose health departments have recently been provided with mobile x-ray units. The Illinois Department has four units. It began its campaign for mass surveys by offering chest x-rays to all state employees in Springfield. About three-fourths accepted the invitation, and so many asked to have their families included that one unit was needed at the capitol for an extended period. Groups, industrial or otherwise, in various parts of the state, may arrange for the services of one of the units through full-time city, county, or district health departments.

On January 1, 1946, Montana's law creating a tuberculosis division in the State Department of Health became effective. As a part of the program the department received a mobile x-ray unit on loan from the Montana Tuberculosis Association. It will be staffed by a doctor, nurse, and x-ray technician.

REGIONAL PROGRAMS FOR SMALL COUNTIES

The Tennessee State Planning Commission publishes *The Tennessee Planner* bi-monthly. The February, 1946, issue, which is Vol. 4, No. 4, says, "Very few counties in Tennessee are large enough and wealthy enough to support good public library systems alone. So it is advantageous for several counties to combine their resources. Regional library service is a plan devised to include several counties whose combined efforts aided by state funds can render greater and more efficient library services to an entire area. Counties participating in the program surrender none of their control over library matters. . . . That the regional plan works has been demonstrated in Tennessee." These words are found in an article on Regional Library Service in Tennessee by Martha Parks, of the State Department of Education, and Malinda Jones, Research Librarian of the Planning Commission. If you substitute local health service for library service or library systems in the above quotation you have the basic principle of Haven Emerson's *Local Health Units for the Nation* which suggests about 1,200 regional local health units to cover the entire country. For Tennessee the suggested units number 23. Library units so far planned or developed number 7, in addition to the 13 counties served by the regional system of the Tennessee Valley Authority which began the regional program and stimulated its development in other parts of the state.

EXPANDING THE CANCER PROGRAM

Those who are planning work of the voluntary agencies in cancer control will be interested to obtain from the New York City Cancer Committee, 130 East 66th St., New York 21, an outline of the Plan for "Enlarged Program of Action of the New York City Cancer Committee," as recently adopted by the Board of Directors. Proposing "a bold, decisive and sensible popular instruction program," the outline includes health education for professional groups, through the schools and other channels. It is proposed that mobile "Little Red Doors" should be set up, that at least

one demonstration area should be arranged, that cancer should be made a reportable disease in New York City, and that tissue diagnostic services should be expanded.

ONE DOLLAR PER CAPITA IS A MINIMUM

"Dr. Emerson and his associates have performed a task of technical planning with great diligence and competency. The report concedes that expenditures of $2.00–$2.50 per capita would be advantageous, but selects the minimum of one dollar as an attainable goal beyond the 1942 average of 61 cents." These words are from a review of *Local Health Units for the Nation*, by Professor W. Wallace Weaver in the January *Annals of the American Academy of Political and Social Science*. Credit Lines compliments Professor Weaver on his excellent review of the report of the A.P.H.A. Subcommittee on Local Health Units, and particularly for his emphasis upon the attainable minimum goal set by the committee. Too often the readers of the report have assumed the committee's proposals for personnel and expenditures for local health units to be ideal.

FOOD VALUE CHARTS

This set of 12 charts is a revision of a similar series of teaching aids published in December, 1942. It has been prepared with the coöperation of nutritionists in Philadelphia and of the Division of Nutrition, Bureau of Maternal and Child Health, Pennsylvania Department of Health. The charts continue to emphasize foods relatively low in cost and commonly available in most parts of the country. Simplicity of presentation on the face of the charts makes them useful for teaching purposes.

The Recommended Dietary Allowances, revised in August, 1945, by the National Research Council, are recorded on the back of each chart to aid in working out the contributions different foods make to adequate diets for individuals of any age. The set may be ordered from the Philadelphia Child Health Society, 311 South Juniper Street—Room 609, Philadelphia, Pa. *50 cents.*

NEW HAVEN HOUSING AUTHORITY

"Today and Tomorrow" is the title of the 1945 report of the New Haven Housing Authority recently published. It includes Chapter 5 of the Story of Low Rent Housing in New Haven, financial statements, and excellent photographs. A good illustration of an effective report of stewardship.

FACTS ABOUT CHILD HEALTH

The Children's Bureau of the Department of Labor introduces its *Facts about Child Health 1946* with these words "No wars we win, no cities we build, will matter if the minds and bodies of our children are not made strong enough to do all that we dreamed of doing when the new peace would come."

It summarizes the facts about the nearly three million babies born annually and the more than forty-six million children under 20—where they live, what they need for health and growth, who is responsible and what is needed for their health, and how well their health is being guarded.

The booklet includes an analysis of the maternal and child health services provided by the Social Security Act and an analysis by states of the five and one-half million dollars paid to states in 1945 for maternal and child health services.

GARAGE SAFETY

The Public Health Education Section of the Washington State Department of Health is distributing *Garage Gripes* widely throughout the state. Illustrated with comic section cartoons,

it tells all about how to avoid accidents in a garage. It was written by C. D. Yaffe, Chief Industrial Hygiene Engineer, and R. H. Scott, Industrial Hygienist of the Industrial Hygiene Section, headed by Lloyd M. Farner, M.D.

NATIONAL HEALTH AND WELFARE RETIREMENT PLAN IS A REALITY

Benefits for March, 1946, is issue No. 1 of the *Bulletin of the National Health and Welfare Association,* the retirement plan for health and welfare organizations. This *Bulletin* summarizes the history and present status of the retirement plan; organization was begun in June, 1944, and the plan became effective in October, 1945, with about 7,000 participants in 750 health and welfare organizations throughout the country. By March, 1946, six death claims had already been paid.

The offices of the Association are at 441 Lexington Avenue, New York 17. Its executive secretary is Homer Wickenden.

MILITARY DEMONSTRATION AREA

The Medical Field Service School of Carlisle Barracks, Pennsylvania, has recently published a report of the Wakeman Field Demonstration Area of the Department of Military Sanitation. The pictures and the running comment are an excellent example of the use of visual demonstrations in education. Wakeman Field was an outdoor demonstration area in teaching military preventive medicine with large classes and the diversity of sanitary problems in a global war. Here simultaneous demonstrations for three classes of 250 men each could be conducted.

PENICILLIN—UP-TO-DATE

For those who want to keep up-to-date on penicillin, the Commercial Solvents Corporation publishes about six times a year a bulletin called "Penicillin—C.S.C. Reporter." This summarizes rather fully the current medical literature on penicillin classified under the various medical conditions for which the drug has been used. The material is printed on sturdy paper and is pre-punched for a loose leaf notebook. With the January, 1946, issue is included an index of the six issues of Volume 2 for 1945. An index was also prepared for Volume 1, some copies of which are still available.

LABOR DIVISION OF BLUE CROSS

The Blue Cross Hospital Plan Commission, an Association of local Blue Cross plans, has established a labor division of the national enrollment office. This labor division was planned to coördinate Blue Cross hospitalization with union health insurance programs. The new division was inaugurated with a booklet *Hospitalization for Trade Union Members,* prepared as an aid to trade union leaders wishing to encourage enrollment of their members.

THE WAR WOUNDED WALK AGAIN

Another saga of pure heroism and complete devotion, to the end that men shall walk, is told by Barrie Stairs in the *Saturday Evening Post* of March 30. Soldiers at the Thomas M. England General Hospital at Atlantic City, paralyzed from the waist down by war injuries, are learning to rise from their beds and walk, thanks to the skill, imagination, and personal devotion of Captain William George Kuhn, Jr. Here is another modern miracle of medical science.

SOCIETY FOR CRIPPLED MOVES

The National Society for Crippled Children and Adults celebrated its move last autumn from Elyria, Ohio, to Chicago and the expansion of its activities, with *New Perspectives.* This is a beautifully printed and illustrated pamphlet. It summarizes not only the

history and activities of the organization, but also state and federal activities in the care of the handicapped, and has a number of graphically illustrated articles on the occupations, earnings, and performance of disabled employees. The present address of the organization is Chicago; its Executive Director is Lawrence J. Linck.

HEALTH EDUCATION IN OREGON

Credit Lines is indebted to Howard S. Hoyman, Professor of Physical Education in the University of Oregon, for details of Oregon's health education and physical education program. The Oregon State Joint Committee for Health and Physical Fitness, established in 1939, sponsored Oregon's new health instruction law which became effective on July 1, 1945. It is a mandatory law providing for a combined health instruction and physical education program in all elementary and high schools of the state.

In addition to its sponsorship of the law, the Joint Committee has stimulated preparation of teachers' manuals in health instruction. Two have been completed—*Health Guide Units for Oregon Teachers* (Grades 7–12), by Professor Hoyman, and *Health Instruction Manual, Elementary Schools*, by Rex Putnam, State Superintendent of Public Instruction. Two others on physical education for girls and boys respectively, grades 1–12, are not yet ready for distribution.

The Joint Committee is also considering the establishment of a health materials depot which may serve as a central source of health teaching aids, the improved health education of teachers and administrators, and the evaluation of the health instruction works of schools.

HELPING THE VETERAN

Out of the welter of advice on how to treat and what to do for veterans comes a 72 page leaflet of sound, sensible suggestions based on the authoritative knowledge of specialists. *Helping Disabled Veterans* (American National Red Cross, Washington, D. C.) was prepared for the Home Service worker, but should be in the hands of all those who are counseling veterans for any purpose or welcoming home those who are markedly disabled. Employers of veterans will find the information helpful in making successful job adjustments and public health workers will find themselves able to answer constructively the many questions of families and of the veterans themselves after reading this booklet.

TUBERCULOSIS SLOGAN IN WEST VIRGINIA

Dr. Robert L. Smith, the Director of the West Virginia Bureau of Tuberculosis Control, conducted a competition to choose the slogan for the back of the new mobile tuberculosis unit. The final slogan was devised by Hattie Sample and reads—

Tuberculosis
X-Ray Finds It
Treatment Cures It!

WORTH ACQUIRING

The National Tuberculosis Association has a quartet of letter size posters that sing the health praises respectively of good posture, adequate sleep, and clean surroundings, and that urge you to swat the fly wherever you find him. In high colors, amusing illustrations and capsule language. Also two leaflets urging chest x-ray and early diagnosis of tuberculosis. National Tuberculosis Association, 1790 Broadway, New York 19.

Food the World Over: Puerto Rican. An imaginative guide for nurses, dietitions, and nutritionists, this booklet states its premise thus, "If we are to succeed in teaching good food habits to people of varying national back-

grounds, we must know the food habits and the backgrounds from which these habits are acquired." A brief history of Puerto Rico follows as well as a discussion of food habits, suggestions for supplementing typical meals with similar foods more easily available here, and some actual Puerto Rican recipes. This is the first in a series which will include similar booklets on Italian, Jewish, Polish, Syrian, and Sectional American dietaries. Nutrition Service, Visiting Nurse Association of Brooklyn, 138 So. Oxford Street, Brooklyn 17. *20 cents.*

A New Challenge—calls attention to the effect of new drugs and modern methods of community control of the venereal diseases. Life Conservation Service, John Hancock Mutual Life Insurance Company, Boston 17. Ask also for *Memorandum on Health Publications* which is a list of booklets on health and safety currently available from the company's Health Education Service.

The Outlook for Women in Occupations in the Medical and Other Health Services: Physicians' and Dentists' Assistants—One of a series prepared by the Women's Bureau of the Labor Department to present the post-war outlook for women in particular occupational fields. Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. *10 cents.*

A set of four posture charts of display size has recently been prepared by the Samuel Higby Camp Institute for Better Posture, Empire State Building, New York 1. In bright colors and good print they are good health education aids. The Institute also announces two posture leaflets, *The Human Back: Its Relationship to Posture and Health* and *Blue Prints for Body Balance.* All of these materials are free of charge.

Making Marriages Last and *Dating "Do's and Don'ts"* for Girls—are two very effective leaflets for use in the guidance of young people. Each has a good brief bibliography. Available at *5 cents* each, or less in quantity orders, from the American Social Hygiene Association, 1790 Broadway, New York 19.

Soap Carving: Aid in Rehabilitation, by Ernest Bruce Haswell. The interest in the author's earlier *The Mental Ward Becomes a Studio,* which was the report of an experimental class in soap sculpture for patients in an Ohio mental hospital, prompted Procter and Gamble to encourage the extension of Haswell's work to an Army Air Force Convalescent Hospital near Cincinnati. The present booklet tells the story of the new venture. It is illustrated with photographs of many of the patients' carvings. Says the report, "Because we believe the suggestions made in this report can be helpful to others engaged in occupational therapy we are publishing this study for gratis distribution to interested groups." Procter & Gamble, Cincinnati 1, Ohio.

Straight from the Shoulder and *Don't Be Your Age*—To conserve the busy time of the doctor is the aim of these health booklets. The first is for young men 18–35, written in their language and with snappy illustrations. It discusses grooming, posture, food, and exercise. The other, prefaced with a graph of the increase in longevity between 1895 and 1945 has as its theme "Add more years to living and more life to years." This is for adults over 35 and reinforces the already well known simple facts about the hygiene of the later years. These, together with *Ice Cream Through the Years,* which gives its history and its usefulness as a food, can be secured in quantity from the National Dairy Council, 111 North Canal Street, Chicago 6.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted. All books reviewed in these columns may be purchased through the Book Service.

Preventive Medicine and Public Health—*By Wilson G. Smillie, A.B., M.D., D.P.H., Sc.D.(Hon.). New York: Macmillan,* 1946. 607 pp. Price, $6.00.

There has long been a real need for a textbook of preventive medicine and public health that presents the subject from the point of view of the student who is aiming to practise clinical medicine, not public health, and who, therefore, needs to learn how to apply preventive principles to the everyday problems of clinical practice. Such a student has little need for much of the detail to be found in the many excellent texts that approach the subject from the strictly public health angle; he can turn to them for reference if occasion arises. On the contrary, he has an urgent need for a discussion of many aspects of preventive medicine that heretofore have found little place in most texts, such as mental hygiene, nutrition, degenerative diseases, medical social work, and the rôle of the public health nurse.

In his new book, *Preventive Medicine and Public Health,* Dr. Smillie chooses as his "major thesis . . . that the physician who is in practice has the obligation to his patients and to his community to prevent illness and to promote family and community health." More specifically he states that "the major purpose of this text has been to point out the opportunity of every physician to incorporate health education as an integral part of his medical practice."

The volume is divided into six sections—an introduction which includes a surprisingly long section on statistics and statistical methods, followed by sections on environmental sanitation, communicable disease control, child hygiene, adult health protection and promotion, and public health administration. Throughout the volume much of the conventional detail has been omitted while emphasis has been placed on those aspects of preventive medicine that are most applicable in the health care of the patient. Yet public health is not completely neglected, for the last section introduces the student to public health agencies and shows the relationship that should exist between the physician and the organized community program. In presenting this topic, Dr. Smillie has avoided the common error of assuming that the student is interested in or even needs to know the detailed internal structure and operation of the health department, or the technical details of many of its most important procedures.

While approaching controversial subjects from an objective point of view, Dr. Smillie has not hesitated to express his own opinions clearly and forcibly on such debatable matters as socialized medicine and birth control and to give the reasons for these opinions. Special attention has been given to the discussion of new preventive measures that have been developed during the war years. Case histories have been used liberally and effectively throughout the volume to illustrate the major points, histories selected to show examples of proper preventive practice and of the ill consequences of neglect of prevention. Moderate use has been made of tabular and graphic material. The bibliography is short, well selected, and up-to-date.

Although it is easy to criticise details of a volume of this character—and the critics will be many—one should not lose sight of the broad ob-

jectives and aims of this work, viz., to present a point of view to a group of students who are normally little interested in preventive medicine. The critical test of such a volume is the impression it will create upon this group of students, not upon a reviewer who has also striven to inculcate the student with the basic principles of prevention. This book seems to have gone further than any previous volume in reaching the student level and to contain both the point of view and the subject content for which the teacher of preventive medicine has so often striven. The case histories, which have been excellently chosen, add immeasurably to the value of the volume.

It is unfortunate that a book that is so excellently conceived and has so many fine features, should contain the number of minor defects to be found in this volume. Errors of fact are not infrequent, so that the teacher must be constantly alert to point out these pitfalls to the student. The irregular distribution of bibliographic references whereby they are collected at the end of certain chapters, rather than at the end of each chapter or section, is confusing. The extent of statistical detail at the very start of the volume may dampen the enthusiasm of many students whose interests are essentially clinical.

The reader will note numerous defects of this character which should be corrected in an early revision. These defects are unfortunate but should not obscure the great potential value of a book that has surpassed all others in presenting the point of view of preventive medicine as an integral part of clinical practice.

GAYLORD W. ANDERSON

Effective Living—*By C. E. Turner, D.P.H., and Elizabeth McHose, M.A. (rev. ed.) St. Louis: Mosby,* 1945. 432 pp., 164 illus. Price, $2.00.

This is a revised edition of an earlier book, the purpose of which is "to help youth discover ways of effective living." The material has been prepared with the young people of high school level in mind. The selection of the material was based in part on actual classroom situations in high schools.

The book is organized in three general parts: Effective Living for the Individual, Effective Living in the Family, and Effective Living in the Community. Each part is divided into several units which may be used as teaching units. The section on individual health, like many texts on personal health, presents first the structure and function of the various parts of the body, then the hygiene, and, lastly, deviations from normal or disease conditions of each part.

At the end of each unit are lists of health checking questions for the use of students, as well as a very comprehensive list of suggestions for problems and activities for class use. These should be valuable to the teacher as well as to the pupil. Also, there is a bibliography for each unit. It is to be regretted that in many instances this bibliography has not been brought completely up to date.

The third part of the book on Effective Living in the Community is unusually well presented for high school students and should do much to give students an understanding of their responsibilities for the health of their own communities.

Throughout the book one finds certain scientific inaccuracies that are to be regretted. For example, the statements, "Quinine kills the malarial parasite in the blood," and "by using an alum compound of this substance (diphtheria toxoid) only one injection is needed," are not in accord with medical knowledge and recommended practice.

Except for this apparent lack of editing on the accuracy of certain

medical facts, the book is an excellent presentation of this material in a style that should appeal to the age group for which it was written, and should do much to motivate young people to put into practice better habits of living.

RUTH E. BOYNTON

Tuberculosis Industrial Nursing and Mass Radiography—*By Julie E. Miale, R.N. New York: National Tuberculosis Association,* 1945. 67 pp. Price, $.50. Copies may be purchased through your state tuberculosis association.

This monograph contains much valuable (reference) material for the industrial nurse. The Four Cardinal Principles mentioned apply equally well to the establishment of any health program in industry.

The material has apparently been prepared with thought for the industrial nurse in the small plant working without the benefit of a medical director to carry the responsibility of the administrative planning and organization of the health program. This thought is timely since the number of these nurses is far greater than the number who do not need to carry such responsibility.

Detailed suggestions are made to guide the nurse in stimulating the interest of management, the plant physician, and labor in the tuberculosis control program. Suggestions are also made for each step in the planning of the program, the procedures during the taking of the x-rays, and finally for the follow-up, which is essential if the program is to have lasting value. Again, the suggestions will be equally helpful to the nurses who are planning and developing other programs.

The appendix contains suggested publicity materials and record forms, as well as a floor plan and flow chart for the taking of x-rays. A list of selected references relating to tuberculosis control is also included.

However, attention should be called to the fact that in most of the states, the state and local departments of health are legally responsible for tuberculosis control. The industrial nurse then should look first to the local or state department of health for assistance in planning the program in industry. The state and local tuberculosis associations render valuable assistance in the educational program and frequently in the loan of personnel or equipment or financing of the x-rays.

F. RUTH KAHL

What Every Teacher Should Know About the Physical Condition of Her Pupils—*By James Frederick Rogers, M.D. Washington: U. S. Govt. Ptg. Office,* 1945. 19 pp. Price, $.10.

It is increasingly recognized that the teacher is the one person in the school who is able to give really continuous day to day health supervision of each pupil. Because of her continuous daily contact with the pupil, the teacher is in a position to detect deviations from normal appearance and behavior more quickly than the nurse, physician, or others in the school. To give her the necessary knowledge and techniques to carry out this function, teacher training institutions are providing theoretical instruction and experience for teachers in normal growth and development of children. Schools, as well, in their in-service education programs for teachers, are emphasizing physical and emotional health and the responsibility of the teacher for observing and reporting to the proper person—parent, nurse, physician, or to a health committee.

What Every Teacher Should Know About the Physical Condition of Her Pupils briefly discusses health appraisal, referral of pupils, and teacher assistance in communicable disease control.

Teachers working alone will like this handy guide to so many of their ques-

tions relating to the health of pupils. Teacher training institutions and those responsible for in-service training will welcome it as a reference. Every public health nurse working with teachers and every health committee studying pupil needs and working out programs for the promotion of pupil health will want a copy at hand. ALBERTA B. WILSON

The Crime of Imprisonment—*By George Bernard Shaw. New York: Philosophical Library,* 1945. 125 pp. Price $2.00.

Here is George Bernard Shaw, the social critic, at his incisive best. He bares the logical, psychological, social, moral, pathological, and educational absurdities of the prison system, in prose which every specialist will find a glorious relief from that of his colleagues.

"Retribution (a euphemism for vengeance)" he finds is in conflict with Reform. Deterrence is a valid social objective, but he finds no evidence that our system of criminal punishment deters. Indeed, there is every evidence that it nurtures, schools, confirms, and multiplies criminals.

Now happily republished as a separate volume, Shaw's classic on the effect of the prison system was written more than twenty years ago to preface a British Labor Research Office study. Its conclusions do not differ significantly from those of Thorsten Sellin in his studies for the American Bar Institute or the studies of Sheldon and Eleanor Glueck. John Barker Waite's, Revenge Costs Too Much, in the May, 1946, *Harper's,* is cut from the same cloth.

No student of our criminal system should call himself educated until he has grappled with Shaw's thesis. But Shaw goes outside prison walls to discuss comparatively the problem of restraints in the community and in the home, and the nature of freedom as a psychological and social concept. All those who administer regulations might well read and ponder. For child psychologists, the passage on Queen Victoria is especially recommended.

PHILIP S. BROUGHTON

A Social Survey of Health and Illness in Urban Families—*By Paul B. Gillen. New York: Cornell Medical College,* 1945. 55 pp. Price, $1.00.

In this preliminary report, a health educator who is also a sociologist studies some 300 persons in 95 families by the use of a comprehensive questionnaire. The persons surveyed represent a low income group of predominantly Czecho-Slovakian extraction who live in a "social block" near a District Health Center on the east side of Manhattan.

Most of the study families were found to include at least one member with an active health problem at the time of interview, but because of poverty, only two-fifths of those ill were under medical care. Clinic services are in general satisfactory to this group. Health insurance is not yet widely used but the respondents are decidedly interested. Few attend educational meetings. The fault for this lies with us, the professional health workers; there is no lack of interest on the part of the people. We are probably equally to blame that their radio listening and health reading are predominantly from poor sources, such as newspapers. The health center has not yet "arrived" in the consciousness of this group. What limited recognition exists has been achieved by its clinical services rather than its educational efforts.

Valuable suggestions for modification of the health center program in large cities of the United States follow from analysis of the facts elicited. This report will interest administrators and health educators alike.

BERNARD M. BLUM

Dietotherapy—*Edited by Michael G. Wohl, M.D. Philadelphia: Saunders,* 1945. 1029 pp. 93 illus. Price, $7.50.

With any rapidly advancing science, such as nutrition, it is always difficult to stop and summarize the current knowledge in book form. This volume is one of the most up-to-date and complete works in the field. It is not a treatise on dietetics alone, but considers nutrition in its broadest aspects. Each of the authors of the various chapters is a recognized investigator and authority in his respective field.

The work is divided into three parts: The first is entitled "Normal Nutrition" and deals with the rôle of the various foodstuffs, minerals, vitamins, and known essential elements and their interrelationship in health and disease. The second part deals with nutrition in periods of physiologic stress, such as in pregnancy, growth, aging, and in relation to infection and immunity. The third and last part deals with nutrition in disease. This section includes the rôle of nutrition in conditions affecting the various systems. In addition, a short current summary of each disease, its pathogenesis and symptomatology, precedes the discussion of the nutritional aspect.

The material is clearly and concisely presented with summaries, illustrative charts, tables, and diagrams. The bibliographies at the ends of chapters are as complete and current as one could desire.

The book concerns itself with the application of modern nutrition as applied to clinical practice. The public health aspects and survey methods are not discussed. It will fulfil the needs of the medical and surgical specialist, the general practitioner and the medical student. The importance of proper nutrition in disease is stressed and it can well be considered a reference text on the subject. NORMAN JOLLIFFE

How to Raise a Healthy Baby—*By L. J. Halpern, M.D. New York: Prentice-Hall,* 1945. 388 pp. Price, $1.95.

This helpful book presents in question-and-answer form innumerable questions on diet, training, and growth encountered by parents of infants and preschool children. Many of the questions are worded in such a way that a fairly technical answer is required. In general the answers are direct, simple and clear. In all instances the answers are accurate according to present knowledge, but a few of the answers would be improved by more explanation. This does not detract from the value of the book because answers do convey the idea that the individual's physician should be consulted. Hence the book stimulates individual medical supervision. Moreover, the book will be a useful reference for public health nurses and nursery school teachers as well as for parents.

The index has been carefully prepared and many cross-references add to the clarity of the book. The medical and scientific approach to problems in child management is emphasized. It is expected that those who read Dr. Halpern's concise book will find it helpful and will be stimulated to read more extensive references on child care and child development.

MARTHA L. CLIFFORD

Psychology Applied to Nursing—*By Lawrence Augustus Averill, Ph.D., and Florence C. Kempf, R.N. Philadelphia: Saunders,* 1946. 496 pp. 55 illus. Price, $2.50.

The third edition of this textbook will be welcomed by the many instructors of student nurses who like to correlate their subject matter in psychology with the daily experience in ward and clinic. Entirely fresh material has been added, including new chapters on guidance of study, personal

adjustment of the student nurse, and, in Units VI and VII, hospital and personal situations have been carefully reviewed and expanded. Altogether this is a useful, clear, and dependable text for students, as well as graduates wishing to review the field.

DOROTHY DEMING

The Jews and Medicine—*By Harry Friedenwald, M.D. (2 Vols.) Baltimore: Johns Hopkins Press,* 1944. 817 pp. Price, $7.50.

Anyone who doubts the beneficent influence of the Hebrew mind on the development of scientific medicine through the ages, in spite of tragic handicaps, would do well to read these two volumes by a distinguished ophthalmologist who inherited this subject and lived with it throughout a long and fruitful life. Anyone who is already convinced will also enjoy these rare snatches of history. The author makes it clear at the outset that he has made no effort at completeness. The emphasis shifts from chapter to chapter, epitomizing portions of the ancient and medieval periods in order to spare his readers the many laborious but satisfying years which he has devoted to his magnificent library on the subject.

The author has marshalled a great many documents in producing these volumes and has given us the fruits of his exhaustive researches in a way that marks him the scholar as well as the scientist. One wishes at times that the text had been brought up to date in a better chronological pattern and that many more Jewish scientists of note and institutions of medical learning had been given their due, but no one can ask more of one who has already made such a painstaking contribution to our knowledge of Jewish medical life during the formative eras of medical practice. This collection of essays belongs on the shelf of everyone who is interested in the history of medicine, and it will yield many a gem to the reader who will examine its pages from time to time.

E. M. BLUESTONE

The Social Problems of an Industrial Civilization — *By Elton Mayo. Boston: Graduate School of Business Administration, Harvard University,* 1945. 150 pp. Price, $2.50.

This volume has grown out of reflections based on studies of industrial organization and production. Its theme is that in industry, and indeed in the whole of industrial civilization, the application of the physical sciences—physics, chemistry, biology, etc.—has far outrun exact knowledge and application of the social sciences—psychology, sociology, political science, etc.

Studies in industry indicate that approval of the group; i.e., of a worker's fellow associates, is a vital but neglected factor in determining the volume of production, the amount of absenteeism, and the maintenance of morale. Teamwork and spontaneous coöperation are possible if thoroughly planned on a patiently gathered, factual background. This is relatively overlooked, not only in industrial administration, but throughout the activities of society.

If civilization is to escape threatening destructive forces, it must develop social skills and the social sciences out of lowly and pedestrian observation and an accumulation and interpretation of social facts which will make possible their application to industry and society on a level more commensurate with the development and utilization of technical skills and the physical sciences.

The author includes in his argument a sharp criticism of the failure of universities to develop the social sciences on sufficient observation of facts.

BAILEY B. BURRITT

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Be **Not Deceived**—For the years 1941–1945 the excess of births over deaths amounted to 7,750,000. This population increase was 2,500,000 greater than the preceding 5 year period. The outlook for a continuing increase in population is not as bright as would appear from these surface indications. Other countries too see through the short-lived population spurt and they are "taking steps."

ANON. The Outlook for Population Growth. Stat. Bull. (Met. Life Ins. Co.), 27, 4:1 (Apr.), 1946.

Where You'd Least Expect—"The public health nurse has played an important part in malaria control." So begins this paper which enumerates the nurses' functions in case finding, incidence surveying, home nursing care, and health education.

BISHOP, E. L. The Prevention and Control of Malaria. Am. J. Nurs. 46, 5:282 (May), 1946.

There Should Be More of This—These sixty-seven crystal clear statements about labor and delivery, hospital care after delivery, and home care after discharge from the hospital should resolve and settle for the apprehensive expectant mother most of her doubts and fears. Reprints are available.

BISKIND, L. H. Alleviation of Anxiety during Pregnancy. Mod. Med. 14, 5:67 (May), 1946.

Despite Radioed Experting—For about a year, half a group of 500 aircraft workers were given a six-vitamin and calcium supplement, the other half enjoyed a placebo. The supervitamined half evidenced some slight improvement in such minor indicators as dryness of the hair and conjunctival transparency, but there was no symptomatic superiority discoverable. In fact the placebo group reported greater benefits in eye symptoms, gain in weight, and miscellaneous "improvements."

BORSOOK, H., *et al.* Nutritional Status of Aircraft Workers in Southern California. Milbank Mem. Fund Quart. 24, 2:98 (Apr.), 1946.

Straw in the Wind—Three more outbreaks of streptococcal infections made resistant to sulfonamide drugs are reported from recent experience.

DELAMATER, E. D., *et al.* Preliminary Report of an Outbreak of Streptococcal Disease Caused by a Sulfadiazine Resistant Group A, Type 17 Hemolytic Streptococcus (and two companion papers). J. Infect. Dis. 78, 2:118 (Mar.-Apr.), 1946.

How Many Nurses?—You will want to follow the reasoning by which this student of health economics arrives at the figure of one public health nurse to about 5,000 of population—for bedside care in the home—or about 28,000 in all. How many more will be needed to carry out the educational work of official health departments and nonofficial health agencies cannot be computed until we know the eventual status of public health administration.

DUBLIN, L. I. Notes on "Public Health Nursing in Relation to Illness." Pub. Health Nurs. 38, 5:213 (May), 1946.

Good News—Another heartening report on the value of influenza prophylaxis. During an epidemic in a university last winter, about 1 per cent of the vaccinated students succumbed whereas about 10 per cent of the unvaccinated came down with the disease.

FRANCES, T., JR., *et al.* The Protective Effect of Vaccination against Epidemic Influenza B. J.A.M.A. 131, 4:275 (May 25), 1946.

Adding Life to Years, Not Years to Life—In No. 1 of Vol. 1 of still another scientific journal, there is told the story of an exclusive club. Until you are over 65 you cannot become a member, regardless of pull or attainments. If you qualify you can attend lectures, play cards, read, listen to music or the radio, indulge yourself in craft work or just have tea and cake.

FUCHS, D., and LEVINE, H. The Hodson Community Center: An Experiment in Preservation of Personality. J. Gerontology. 1, 1 (Jan.), 1946.

When Mumps Involves the Meninges—Meningoencephalitis following mumps is an entity which can be diagnosed with the aid of new serologic tests. Health administrators will want to ponder over the findings of this study.

HOLDEN, E. M., *et al.* Mumps Involvement of the Central Nervous System. J.A.M.A. 131, 5:382 (June 1), 1946.

Refreshing Candor—Tomorrow's recruits for replenishing our city populations are today's rural children. Rural babies and mothers are not getting their share of health protection and as a consequence urban health too will suffer in the next generation. We have the means to provide competent rural health services but so far we've mostly talked around and about the job.

MOTT, F. D. A Public Health Program for Rural Areas. Pub. Health Rep. 61, 17:589 (Apr. 26), 1946.

For Better Equipped Sanitarians—Wartime demand for health workers has hampered plans for developing well trained staffs. Now that more nearly normal employment conditions are returning, it is to be hoped that well rounded training programs will be set in motion as the federal educational scheme originally envisioned.

MOUNTIN, J. W. Training Public Health Workers. Pub. Health Rep. 61, 21:725 (May 24), 1946.

And Now Tuberculosis—Most writers who have questioned prolonged bed rest as potentially harmful and of limited therapeutic value, have been careful to exclude from their diatribes the bed care of the tuberculous. Now comes a phthisiotherapist who challenges the concepts of bed rest in this field too. He asserts that supervision of rest is a medical responsibility demanding flexibility and individualization.

PECK, W. M. The Modalities of Bed Rest. Pub. Health Rep. 61, 18:626 (May 3), 1946.

How to Get Rid of Rats—Suggestions for organizing a community-wide rat poisoning project are set forth in useful detail.

RICHTER, C. P., and EMLEN, J. T. Instructions for Using ANTU as a Poison for the Common Norway Rat. Pub. Health Rep. 61, 17:602 (Apr. 26), 1946.

Death Rates and Age—Being highly allergic to abstruse logarithmic equations, I did not follow the reasoning, but it says in the summary of this paper that there is no proof we cannot extend active life an extra hundred years or so. Don't let this assertion raise your hopes—the paper doesn't tell how to do it.

SIMMS, H. S. Logarithmic Increase in Mortality as a Manifestation of Aging. J. Gerontology. 1, 1:13 (Jan.), 1946.

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ADVANCING FRONTS IN CHEMISTRY. (Vol. II.) (Chemotherapy.) Edited by Wendell H. Powers. New York: Reinhold Publishing Corp., 1946. 156 pp. Price, $3.25.

AMERICAN FOUNDATIONS FOR SOCIAL WELFARE. By Shelby M. Harrison and F. Emerson Andrews. New York: Russell Sage Foundation, 1946. 249 pp. Price, $2.00.

APPENDICITIS IN CLEVELAND. By Howard Whipple Green, A.B., B.S., and Ralph M. Watkins, M.D. Cleveland: Cleveland Health Council, 1946. 57 pp. Free from publisher.

A BIBLIOGRAPHY OF INFANTILE PARALYSIS. Edited by Morris Fishbein, M.D. Philadelphia: Lippincott, 1946. 672 pp. Price, $15.00.

CHILD PSYCHOLOGY FOR PROFESSIONAL WORKERS. By Florence M. Teagarden, Ph.D. New York: Prentice-Hall, 1946. 613 pp. Price, $3.75.

COLLEGE COURSE, RED CROSS HOME NURSING —INSTRUCTORS GUIDE. American National Red Cross. Washington: American National Red Cross, 1946. 150 pp. Free to colleges and universities through the local chapters of the ARC.

THE COMMON SENSE BOOK OF BABY AND CHILD CARE. By Benjamin Spock, M.D. New York: Duell, Sloan & Pearce, 1946. 527 pp. Price, $3.00.

THE DIAGNOSIS AND TREATMENT OF PULMONARY TUBERCULOSIS. By Moses J. Stone, M.D., and Paul Dufault, M.D., F.A.C.P. Philadelphia: Lea & Febiger, 1946. 325 pp. 93 illus. Price, $3.50.

DOCTORS EAST DOCTORS WEST. By Edward H. Hume, M.D. New York: Norton, 1946. 278 pp. Price, $3.00.

FOR A STRONGER CONGRESS. Public Affairs Pamphlet No. 116. By Philip S. Broughton. New York: Public Affairs Committee, Inc., 1946. 32 pp. Price, $.10.

THE GENUS IXODES IN NORTH AMERICA. National Institute of Health Bulletin No. 184. By R. A. Cooley and Glen M. Kohls. Washington: U. S. Gov. Ptg. Office, 1945. 246 pp. Price, $.40.

HEALTH AND EMPLOYMENT. A Study of Public Assistance Clients Attending Out-Patients Department Clinics. By Myra E. Shimberg, Ph.D. New York: National Council on Rehabilitation, 1946. 109 pp. Price, $2.50.

MEDICAL SERVICES BY GOVERNMENT. By Bernhard J. Stern, Ph.D. New York: Commonwealth Fund, 1946. 208 pp. Price, $1.50.

THE MODERN ATTACK ON TUBERCULOSIS. By Henry D. Chadwick, M.D., and Alton S. Pope, M.D. (rev. ed.) New York: The Commonwealth Fund, 1946. 134 pp. Price, $1.00.

MODERN MANAGEMENT IN CLINICAL MEDICINE. By F. Kenneth Albrecht, M.D. Baltimore: Williams & Wilkins, 1946. 1238 pp. Price, $10.00.

NATIONAL SOCIETY FOR THE STUDY OF EDUCATION. Forty-fifth Yearbook, Part I. Edited by Nelson B. Henry. Chicago: Univ. of Chicago Press, 1946. 338 pp. Price, $2.25.

THE PRINCIPLES AND PRACTICE OF TROPICAL MEDICINE. By L. Everard Napier. New York: Macmillan, 1946. 917 pp. Price, $11.00.

RESEARCH AND REGIONAL WELFARE. Papers Presented at a Conference on Research at the University of North Carolina at Chapel Hill, May 9, 10, 11, 1945. Edited by Robert E. Coker. Chapel Hill, N. C.: Univ. of North Carolina Press, 1946. 229 pp. Price, $3.00.

SOLO OR SYMPHONY. Medical Administration Service, Inc. New York: Medical Administration Service, Inc., 1946. 44 pp. Price $.25.

STUDIES IN SCIENCE. Edited by W. C. Coker. Chapel Hill, N. C.: Univ. of North Carolina Press, 1946. 375 pp. Price, $3.00.

SWIMMING POOL DATA AND REFERENCE ANNUAL (14th Ed.). By Beach & Pool, Inc., New York: Hoffman-Harris, Inc., 1946. 134 pp. Price, $3.00.

THE UNIVERSITY AT THE CROSSROADS. By Henry E. Sigerist, M.D., D.Litt., LL.D. New York: Henry Schuman, 1946. 162 pp. Price, $2.75.

ASSOCIATION NEWS

SEVENTY-FOURTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
CLEVELAND, OHIO — NOVEMBER 12–14

ORGANIZATION OF CLEVELAND LOCAL COMMITTEE

Harold J. Knapp, M.D., Commissioner of Health of Cleveland, and General Chairman of the Local Committee for the Association's 74th Annual Meeting, November 12–14, announces the following appointments to the Local Committee:

Finance Committee	Dean Halliday, *Chairman*
Mr. Halliday will also function as co-chairman of the general Local Committee	
Publicity Committee	Frank Ryan, *Chairman*
Meeting Rooms Committee	Virginia Wing, *Chairman* H. G. Dyktor, *Co-chairman*
Registration Committee	Dr. Charles F. McKhann, *Chairman*
State Membership Committee	Dr. Roger Heering, *Chairman*
Dr. Heering will also be designated as co-chairman of the general Local Committee	
Local Membership Committee	Dr. Robert H. Bishop, *Chairman*
Local Scientific Exhibits Committee	Dr. Bruno Gebhard, *Chairman* Dr. Robert N. Hoyt, *Co-chairman*
Scientific Trips Committee	Howard Green, *Chairman* E. B. Buchanan, *Co-chairman*
Entertainment Committee	Mrs. David K. Ford, *Chairman* E. L. Worthington, *Co-chairman*

The Preliminary Program of the Scientific Sessions for the 74th Annual Meeting will be published in the September *Journal*. Railroad rates and hotel information will appear in the August issue.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Lyman T. Cox, M.D., 209 S. Campbell, El Paso, Tex., Director, El Paso City-County Health Dept.

Dr. Arturo Congote-Escobar, Carrera 15, 21-65, Armenia Dept. Caldas, Colombia, S. A., Director Centro de Higiene

John A. Degen, Jr., M.D., M.P.H., 411 Herald Bldg., Syracuse, N. Y., Asst. District Health Officer, State Dept. of Health

James A. Gr'der, Jr., M.D., 151 U. S. Court House, El Paso, Tex., Chief of Office, Pan-American Sanitary Bureau

Charlotte M. Horner, M.D., D.P.H., Campbellford, Ontario, Canada, Asst. Medical Officer of Health, Northumberland-Durham Health Unit

George E. Lacy, M.D., 1401 N.W. 7th Ave., Miami, Fla., Director Dade County Venereal Disease Control Program

Clarence W. MacCharles, M.D., D.P.H., Northumberland-Durham Health Unit, Cobourg, Ontario, Canada, Director and Senior Medical Officer of Health

Cameron F. McRae, M.D., Health Dept., Norton, Va., Health Officer, Russell-Wise Health District

Octavio S. Mondragon, M.D., Avenida del Castillo 215, Lomas de Chapultepec, Mexico City, Mexico, Undersecretary of Public Health and Welfare

Dale E. Scholz, M.D., Dept. of Health, Middletown, Conn., Health Officer

Laboratory Section

D. A. Anderson, Ph.D., Brigham Young Univ., Bact. Dept., Provo, Utah, Assoc. Prof. of Bacteriology

James M. Beebe, Ph.D., University of Arizona, Dept. of Bacteriology, Tucson, Ariz., Teacher, Bacteriology and Laboratory Methods

M. S. A. Campbell, 1098 W. Michigan St., Indianapolis 7, Ind., Bacteriologist, State Board of Health

Margaret S. Coates, B.S., 5912 14th St., N.W., Apt. 201, Washington 11, D. C., Research Laboratory Worker

Lemuel W. Diggs, M.D., 93rd and Euclid, Cleveland, Ohio, Cleveland Clinic Foundation

Nicholas D. Duffett, Ph.D., 7045 Cleatha, St. Louis 9, Mo., Principal Bacteriologist, St. Louis Health Division Laboratory

Elsie P. Foxhall, 1907 Hanover Ave., Richmond 20, Va., Serologist, State Health Dept.

Frances A. Hamler, 1268 Van Buren, Topeka, Kans., Bacteriologist, State Board of Health

Alice R. Keiton, 2712 Nueces, Apt. B, Austin 21, Tex., Asst. Bacteriologist, State Health Dept.

Luella K. Ketcheson, B.S., 4541 16th Ave., N.E., Seattle 5, Wash., Junior Bacteriologist, State Dept. of Health

Aaron Learner, M.D., 115 Cahill Lane, Oak Ridge, Tenn., Chief of Laboratory Service, Oak Ridge Hospital

Jean McGregor, B.A., Pierre, S. D., Junior Bacteriologist, Division of Laboratories, State Public Health Dept.

Ernest M. Noblitt, M.S.P.H., Tom Green County Health Unit, San Angelo, Tex., Laboratory Director

Morris Pollard, D.V.M., Univ. of Texas, Medical School, Galveston, Tex., Asst. Prof. of Public Health

Robert C. Pope, Box 903, Dallas, Tex., Chemist, Pope Testing Laboratories

Bjorn Sigurdsson, M.D., Fjolugata 23, Reykjavik, Iceland, Director, Institute for Experimental Pathology, University of Iceland

George G. Smith, B.A., 501 N.E. 15, Oklahoma City, Okla., Bacteriologist, State Health Dept.

Pauline I. Thomas, 1401 Monaco Parkway, Denver, Colo., Bacteriologist, State Board of Health

Guy R. Vitagliano, M.S., 4905 Alcott Ave., St. Louis 20, Mo., Assoc. Bacteriologist, Dept. of Public Welfare Laboratory

Vital Statistics Section

Julia F. Heuck, M.A., 2126 Connecticut Ave., N.W., Washington 8, D. C., Director of Research, District of Columbia Tuberculosis Assn.

Nancy G. Katzki, B.A., 5104 S.E. 39th Ave., Portland 2, Ore., Statistician, Division of Tuberculosis Control, State Board of Health

Elizabeth M. Macfarlane, Calhoun County Health Dept., Battle Creek, Mich., Statistician

Engineering Section

Ralph O. Archer, B.S., 423 North Water, Gallatin, Tenn., Sanitarian, Sumner County Health Dept.

Leslie R. Bacon, Ph.D., Wyandotte Chemicals Corp., Wyandotte, Mich., Research Supervisor

Demetrio Ganon-Corcho, No. 5, Castelar St., Ciudad Trujillo, Dominican Republic, Engineer and Sub-Director, Division of Malariology, Health Dept., Dominican Republic

H. Clifford Goslee, 256 Palm St., Hartford, Conn., Exec. Asst. to Commissioner, State Dairy and Food Commission

James T. Hart, Jr., B.S., 3 Franklin Place, Morris Plains, N. J., Supt., Morris County Mosquito Extermination Commission

Hugo E. Kunhardt-Gonzalez, 54 Perkins Hall, Harvard Univ., Cambridge, Mass., Student

Otto Paganini, Hidalgo County Health Unit, Edinburg, Tex., Sanitary Engineer

Irvin B. Tapley, Box 202, Idabel, Okla., Inspector of Residual Spraying, MCWA, USPHS

Ariel A. Thomas, M.S., Dept. of Civil and Sanitary Engineering, Massachusetts Institute of Technology, Cambridge 39, Mass., Instructor of Sanitary Engineer

Walter H. Watanabe, B.S., P. O. Box 511, Wailuku, Maui, Hawaii, Sanitary Inspector, Bureau of Sanitation

Industrial Hygiene Section

Gerald M. Kilcullen, 1523 Unionport Rd., New York 62, N. Y., A.U.S., 1941–1945

Richard L. Kuehner, Ph.D., R.D. 2, York, Pa., Research Engineer, York, Corp.

Robert Soles, A.B., 417 Adams, Fairmont, W. Va., Physical Therapist

Food and Nutrition Section

Mary E. W. Barduhn, M.S., 1846 Spruce St., Berkeley 4, Calif., Nutritionist, San Francisco Dept. of Public Health

Harry D. Fein, M.D., 114 E. 61st St., New York 21, N. Y., Physician, Nutrition Clinic, Lower East Side Health Center, Dept. of Health

Rachel H. Ferguson, State Health Dept., Charleston, W. Va., Nutrition Consultant

Lois F. Hallman, A.B., 3665 38th St., N.W., Washington 16, D. C., Biochemist, U. S. Dept. of Agriculture

Edith Lawrence, B.S., Extension Service, College Station, Tex., Food Preparation Specialist

Marguerite J. Queneau, M.A., 76 State St., State Health Dept., Albany, N. Y., Nutritionist

Gertrude M. Speck, B.S., 1930 Third St., East Moline, Ill., Consultant Dietitian, Div. of Maternal and Child Hygiene, State Dept. of Public Health

Margery Vaughn, 1321 S. Arlington Ridge Rd., Arlington, Va., Deputy Director, Nutrition Service, American Red Cross

Maternal and Child Health Section

Noah Barysh, M.D., 15 Park Ave., New York, N. Y., Physician, Bureau of Child Hygiene, New York City Health Dept.

Kurt Bluehdorn, M.D., 352 West 110th St., New York 25, N. Y., Medical Inspector, Bureau of Child Hygiene, New York City Health Dept.

Thomas M. Boulware, M.D., 2501 N. 16th Ave., Birmingham, Ala., Consultant in Obstetrics, Jefferson County Health Dept.

Reba M. Butler, R.N., 703 California State Bldg., Los Angeles 12, Calif., Hospital Nursing Consultant, State Dept. of Public Health

Ella K. Cooper, M.D., 3406 73rd St., Jackson Heights, N. Y., Medical Inspector, New York City Dept. of Health

Michael A. Cuozzo, M.D., 140 Eighth Ave., Brooklyn 15, N. Y., Medical Inspector, Pediatrics, New York City Dept. of Health

Auguste Falkenstein, M.D., 556 West 140th St., New York 31, N. Y., Physician, Child Health Station, New York City Dept. of Health

Georgeanna H. Greer, M.D., 1300 A. Norwalk Lane, Austin, Tex., Pediatric Consultant, School Health Services, State Health Dept.

H. Neumaun, M.D., 225–08 Linden Blvd., St. Albans, N. Y., Physician, New York City Health Dept.

Margery Peabody, 16 Hartwell St., VNA, Fitchburg, Mass., Supt., Fitchburg Visiting Nurse Assn.

Public Health Education Section

Herman Saavedra-Bayer, M.D., Univ. of Calif., International House, Berkeley, Calif., Chief of Public Health Education Dept., Inter-American Cooperative Public Health Service, Bogota, Colombia

Nellie A. Blake, M.S.P.H., 1135 E. Catherine St., Ann Arbor, Mich., Educational Director, Michigan Rapid Treatment Center

Anthony E. Bott, D.V.M., Box 87, East St. Louis, Ill., Secretary-Treasurer, Corn Belt Laboratories, Inc.

Rhoda Cobin, R.N., 350 Ocean Ave., New London, Conn., Public Health Instructor, Joseph Lawrence School of Nursing

S. W. Evans, M.A., P. O. Box 5755, Bethesda 14, Md., Health Education Specialist, Venereal Disease Division, U. S. Public Health Service

Edith M. Gereau, M.P.H., Charlotte Amalie, St. Thomas, Virgin Islands, Health Coördinator, Dept. of Health

Paul B. Gillen, M.Ed., 520 W. 122nd St., New York 27, N. Y., Instructor in Public Health and Preventive Medicine, Cornell University Medical College

Eleanor V. Green, M.A., 105 E. 22nd St., New York 10, N. Y., Field Advisor, State Charities Aid Assn.

Cecyl N. Covelsrud, B.A., Fresno State College, Fresno, Calif., Supervisor, Community Health Education Project

Leonard F. Janes, M.Ed., Bristol County Health Assn., 17 County Court House, Taunton, Mass., Health Education Director

W. Harvey Jordan, 2719 N.W. 24th St., Miami, Fla., Senior Sanitary Officer, Dade County Health Unit

Catherine C. Meyering, B.A., 1385 Nicholson St., N.W., Washington 11, D. C., Director, Rehabilitation Service, D. C. Tuberculosis Assn.

Sister Mary Arnolda Miller, R.N., 355 Ridge Ave., Evanston, Ill., St. Francis Hospital

Roscoe K. Miller, M.A., 1022 S.W. 11th Ave., Portland 5, Ore., Health Education Consultant, State Board of Health

Charles J. Miramon, B.A., 2630 Bell, New Orleans, La., Acting Sanitation Supervisor, City Dept. of Health

Russell C. Nye, M.B.A., Parkland Hospital, Maple and Oaklawn, Dallas 4, Tex., Hospital Administrator

Donald E. Pratt, A.B., 411 N. 10th St., St. Louis, Mo., Exec. Secy., Missouri Tuberculosis Assn.

Amy E. Rogers, B.S., 52 Main St., Salamanca, N. Y., Exec. Secy., Cattaraugus County Tuberculosis and Public Health Assn.

Howard A. Rusk, M.D., New York Times, New York 18, N. Y., Assoc. Editor

Victor J. St. Blanc, Jr., A.B., 680 Oak St., Harahan, La., Sanitation Inspector, New Orleans Health Dept.

Howard J. Stroud, 32 Andre St., S.W., Grand Rapids, Mich., Student Assistant, Dept. of Environmental Health, School of Public Health, Univ. of Michigan

Richard E. Thurber, 352 East 89th St., New York 28, N. Y., Orderly, Bureau of Social Hygiene, New York City Health Dept.

Fentem Utley, B.S., Arkansas State Board of Health, Little Rock, Ark., Health Educator

Josef J. Weisskopf, M.D., 5105 8th St., N.W., Washington 11, D. C., Medical Consultant, Medical Supply Division, UNRRA

Waldo W. Wilmore, M.A., State House, Board of Health, Topeka, Kans., Personnel Officer

Catherine A. Worthingham, M.A., 120 Broadway, N.F. for I.P., New York 5, N. Y., Director of Technical Education, National Foundation for Infantile Paralysis

Public Health Nursing Section

Guilda M. Albert, R.N., 69 Park St., Lewiston, Me., Exec. Secy., Lewiston-Auburn Tuberculosis Assn.

Beulah K. Ankenmann, R.N., 510 First National Bldg., Ann Arbor, Mich., Exec. Director, Public Health Nursing Assn.

Ingeborg Bemberg, B.S. in N., 614 Davis St., Evanston, Ill., Supervisor, Evanston Visiting Nurse Assn.

Helen L. Brown, 533 Second St., Corte Madera, Calif., Nursing Field Representative for Central California, American Red Cross

Mary Lee Brown, R.N., Meharry Medical College, Nashville, Tenn., Director of Public Health Nursing

Ermah L. Damewood, R.N., P. O. Box 2583, Charleston 29, W. Va., Public Health Nurse, Kanawha County Health Dept.

Elizabeth A. Delavan, R.N., 2016 Washington Ave., Racine, Wis., Director of Nursing, Racine Health Dept.

Rose B. Dolan, c/o Mrs. Toland, Wynnewood, Pa., Director of Nursing and Social Work, American Committee for Civil Affairs

Florence O. Eby, R.N., B.S., Box 960, Anchorage, Alaska, Supervisory Nurse for Interior, Territorial Dept. of Health

Amy M. Erickson, R.N., M.A., 132 East 45th St., New York 17, N. Y., Instructor, New York University

Virginia R. Field, R.N., Box 1056, Bismarck, N. D., Asst. Director of Public Health Nursing, State Dept. of Health

Agnes Fuller, B.S., 348 W. 23rd St., New York, N. Y., Asst. Director, National Organization for Public Health Nursing

Florence A. Gates, 47 Washington Ave., South Nyack, N. Y., School Nurse

Beryl D. Huffman, R.N., 501 Taylor, Topeka, Kans., Staff Nurse and Advisor, Topeka City-Shawnee County Health Dept.

Jean H. LeFors, 801 Lindenwood, Topeka, Kans., Staff Nurse, Topeka City-Shawnee County Health Dept.

Mary S. Lothes, R.N., 119 Chestnut, Elkins, W. Va., Venereal Disease Clinic Nurse and Field Nurse, West Virginia Tuberculosis and Health Assn.

Helen M. Marcy, B.A., Box 1206, Lakeview, Ore., Lake County Public Health Nurse

Ariel A. Moore, R.N., B.S., 1020 Santa Fe Bldg., Dallas, Tex., Asst. Nurse Officer (R), U. S. Public Health Service

Elizabeth S. Newton, B.S., 1900 W. Polk St., Chicago 12, Ill., Director of Health, Cook County School of Nursing

Laura S. Story, M.A., 8615 Elmhurst Ave.,

Elmhurst, N. Y., District Supervising Nurse, New York City Dept. of Health

Margaret W. Thomas, M.A., Humboldt Bank Bldg., San Francisco, Calif., Regional Nursing Consultant, U. S. Childrens Bureau

Epidemiology Section

Capt. Alton M. Brown, USPHS, USF, China Theatre, APO 971, San Francisco, Calif., Passed Assistant Sanitarian (R), U. S. Public Health Service

Alejandro Principe, M.D., Sanatorio Antituberculoso, "Simon Bolivar," Caracas, Venezuela, S. A., Director, Tuberculosis Clinic, Ministry of Public Health and Social Welfare

Harry Rubin, 301 Dryden Rd., Ithaca, N. Y., Student, New York State Veterinary College

Howard B. Shookhoff, M.D., 600 West 168th St., New York 32, N. Y., Epidemiologist in Tropical Diseases, New York City Health Dept.

Colonel Tom F. Whayne, M.C., Office of the Surgeon General, U. S. Army, Washington, D. C., Asst. Chief, Preventive Medicine Division

School Health Section

Jacob J. Altholtz, M.D., 208 Ross St., Brooklyn 11, N. Y., School Physician, New York City Health Dept.

Michael A. Brescia, M.D., 40–50 Junction Blvd., Corona, N. Y., Medical Inspector, New York City Health Dept.

Charles A. R. Connor, M.D., 140 East 54th St., New York, N. Y., Supervising Cardiologist, New York City Health Dept.

Helen F. Dempster, M.A., State Dept. of Education, Salem, Ore., Supervisor of Special Health Instruction Projects (Kellogg Foundation Program)

Leo Falkenstein, M.D., 556 West 140th St., New York 31, N. Y., School Medical Inspector, New York City Health Dept.

Isabel R. Hefelfinger, 430 Washington Rd., Nevada City, Calif., Supervisor of Health, Nevada City Schools

Renee K. Imberman, M.D., 1786 Topping Ave., New York 57, N. Y., School Physician, New York City Health Dept.

Lucy Jaffe, M.D., 609 West 196th St., New York 34, N. Y., School Physician, New York City Health Dept.

Elizabeth G. Lovell, R.N., 52 Hunt Ave., Charleston, W. Va., Kanawha County School Nurse

Lucile A. Nolan, R.N., M.A., 15603 Hilliard Rd., Lakewood, Ohio, Asst. Supervisor of School Nurses, Cleveland Public Schools

Orpha K. Reel, R.N., 707 Bauer Ave., Charleston 2, W. Va., School Nurse, Kanawha County School Board

Dental Health Section

Cleveland W. Eneas, D.D.S., 1606 Meharry Blvd., Nashville, Tenn., Asst. Prof. of Oral Anatomy, Meharry Medical College

Donald J. Galagan, D.D.S., Dept. of Health, Troy, Ohio, Dental Surgeon, U. S. Public Health Service

Dr. Herbert I. Margolis, 311 Commonwealth Ave., Boston 15, Mass., Member, Council of Dental Health, Massachusetts Dental Society

James Nuckolls, D.D.S., The Medical Center, Univ. of California, College of Dentistry, San Francisco 22, Calif., Prof. of Operative Dentistry

A. H. Trithart, D.D.S., West Tenn. Regional Office, Dept. of Public Health, Jackson, Tenn., Regional Dental Officer

Unaffiliated

Frank W. Bishop, LL.D., 1735 Riggs Place, N.W., Washington, D. C., Social Science Analyst, Social Security Board

Sister Marie Daly, Providence Hospital, 2nd and D Sts., S.E., Washington, D. C., Administrator

Beulah Hamlin-Howard, R.N., Portland Open Air Sanitorium, Milwaukie, Ore., Tuberculosis Specialist

Isabelle Mugnier, R.N., 715 St. Charles St., New Orleans 12, La., Food and Milk Sanitarian, New Orleans Health Dept.

Douglas W. Ritchie, M.D., Rancho Los Amigos, Hondo, Calif., Medical Director

Estelle Shelton, R.N., 1627 Melpomene St., New Orleans 13, La., Food and Milk Sanitarian, New Orleans Health Dept.

Helen E. Weaver, R.N., City Hall, Room 606, Buffalo, N. Y., Student, Columbia Univ., School of Public Health

A.P.H.A. MEMBERSHIP CROSSES 10,000 TOTAL

On May 17, the American Public Health Association membership list passed the 10,000 mark and the ten thousandth member was Victor St. Blanc, sanitation inspector with the New Orleans Health Department. Mr. St. Blanc is a graduate of the Louisiana State University and of the Sanitarian School, St. Mary's Parish Health Unit. He served for some time with the Louisiana State Health Department be-

fore beginning his present position in September, 1945.

Mr. St. Blanc is one of four staff members of the Bureau of Sanitation in the New Orleans Health Department whose conscientious service was recognized by their chief, Charles J. Ball, the director of the Bureau of Sanitation, who has generously made available memberships in the American Public Health Association as awards.

A.P.H.A. COUNSELING AND PLACEMENT SERVICE EXPANDS

As of June 1 the report of F. W. Racker, M.D., M.P.H., Personnel Consultant for the Vocational Counseling and Placement Service, showed that a total of 182 persons were registered for all positions, the largest number in the fields of health education, laboratory workers, and medical administration. The service as of the same date listed 560 vacant positions among 161 employers. The largest numbers of positions were in the field of medical administration, epidemiology, and clinical service, where 304 vacancies were on record. Forty-nine sanitarians were sought and 54 sanitary engineers.

Along with a steadily increasing number of positions has come a slowly increasing number of registrants, but in total less than a third of those required to fill listed positions. Especially encouraging is a substantial increase in the number of positions open for sanitary engineers where such a substantial deficit of personnel has been shown. According to the report on *Local Health Units for the Nation*, recently published by the Commonwealth Fund on behalf of the American Public Health Association, a deficit of more than 1,000 sanitary and public health engineers was apparent in local health service alone in order to provide a basic grade of supervision for the environment.

The Vocational Counseling and Placement Service is operated by the American Public Health Association with the active coöperation of the U. S. Public Health Service. The present project it is hoped can be continued after the end of the current federal year on June 30, and prospective employers and employees are encouraged to register with the service, which may be addressed in care of the Association at 1790 Broadway, New York 19, N. Y.

DECEASED MEMBERS AND FELLOWS

Fellows

William W. Brooke, M.D., Bayonne, N. J., Elected Member 1919, Elected Fellow 1925, Health Officers Section

Thomas J. Duffield, New York, N. Y., Elected Member 1926, Elected Fellow 1935, Vital Statistics Section

A. C. Hunter, Ph.D., Washington, D. C., Elected Member 1919, Elected Fellow 1930, Food and Nutrition Section

Francis D. Patterson, M.D., Philadelphia, Pa., Elected Member 1913, Charter Fellow, Industrial Hygiene Section

Members

Louis M. Allyn, M.D., Mystic, Conn., Elected Member 1921, Unaffiliated

Fred H. Jennings, Watertown, N. Y., Elected Member 1908, Laboratory Section

Jose D. Moral, M.D., Ph.D., Guayaquil, Ecuador, Elected Member 1926, Laboratory Section

George W. Ross, M.D., Port Ewen, N. Y., Elected Member 1935, Health Officers Section

Margaret I. Stanford, R.N., Charleston, S. C., Elected Member 1928, Public Health Nursing Section

Alexander L. Thomson, Fishaw, Scotland, Elected Member 1930, Engineering Section

CORRECTION

In the article appearing in the May Journal entitled, "Acute Respiratory Disease Among New Recruits," by the Commission on Acute Respiratory Diseases, a correction should be made: the first line on page 442 should include the word "unseasoned" instead of "seasoned."

AUTHORS

JOINT COMMITTEE ON HOUSING AND HEALTH

F. Stuart Chapin, Ph.D., Chairman and Director of the Department of Sociology, University of Minnesota, has agreed to serve as a member of the Joint Committee on Housing and Health of the National Association of Housing Officials and the Association.

CLOSING DATE FOR ACCEPTING FELLOWSHIP APPLICATIONS

September 1 will be the closing date for accepting applications for Fellowship to be considered at the 1946 Annual Meeting in November. Members who are eligible and are interested in becoming Fellows are urged to submit their applications, completely filled in and sponsored, as far in advance of this date as possible.

NEW MEMBERS OF THE SUBCOMMITTEE ON HYGIENE OF HOUSING

The following have accepted membership on the Subcommittee on the Hygiene of Housing:

F. Carlyle Roberts, Jr.
Sanitary Engineer
U. S. Public Health Service
Washington, D. C.

Abner D. Silverman
Deputy Assistant Commissioner for Project Management
Federal Public Housing Authority
Washington, D. C.

Henry Wright, Managing Editor
Architectural Forum
Empire State Building
New York, New York

A.P.H.A. membership application blank on page XXVII

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Adress all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

Positions Available

(Supplemental to list in June Journal)

Wanted: Medical Social Worker for challenging position. Combination case work and community organization in voluntary health agency, Denver, Colo. No travel. Write **Box K,** Employment Service, A.P.H.A.

Wanted: **Executive Secretary** for voluntary health agency in urban New England community. Duties: program planning, community organization, fund raising. Master's degree and experience required. Salary $3,500–$4,000. **Box S,** Employment Service, APHA.

Wanted: **Junior Sanitarian** for Department of Health, Jackson, Mich., with degree in an applied science, preferably specialization in public health courses or graduation from college or university of recognized standing and at least 1 year of successful experience in sanitation and public health work, or any equivalent combination of education and experience. Salary range $2,350–$2,560 per year. Apply Civil Service Commission, City Hall, Jackson, Mich.

Wanted: **Director,** Bureau of Vital Statistics. Must have college degree with courses in statistics and at least 4 years' experience in vital statistics work. Preference given to M.D. or Ph.D. in statistics. Write for information to Merit System Supervisor, Florida State Board of Health and Crippled Children's Commission, 201 Professional Bldg., Gainesville, Fla.

Wanted: **Health Officer,** Champaign-Urbana Public Health District, Ill. Home of University of Illinois. Salary $5,000 plus $600 travel. Write State Health Officer, Springfield, Ill., for information.

Epidemiologist wanted who will also serve as director of Division of Acute Communicable Diseases Control of Department of Public Health, Seattle, Wash. Beginning salary $6,000 plus reimbursement for necessary travel. Apply to Emil E. Palmquist, M.D., Director of Public Health, 300 Public Safety Bldg., Seattle 4, Wash.

Wanted: Physician for director of Division of Maternal and Child Health Service of Department of Public Health, City of Seattle. Applicant must have had specialized training in pediatrics or public health and experience also preferred. Beginning salary $6,000 plus reimbursement for necessary travel. Apply to Emil E. Palmquist, M.D., Director of Public Health, 300 Public Safety Bldg., Seattle 4, Wash.

Wanted: Public health nurses for generalized nursing program. Salary range $210–$240 per month. Under civil service 40 hour week, vacation and sick leave privileges. Address Director of Public Health Nursing, City of Seattle, 504 County-City Bldg., Seattle 4, Wash.

Wanted: Well trained, full-time health officer to direct generalized program of Chippewa Co., Mich. Population 26,000, central office Sault Ste. Marie, population 16,000. County will be combined within year with two adjoining sparsely settled counties, increasing total population to 40,000. Beginning salary $6,000 plus adequate travel allowance. Salary increase at time of merger. Write Russell E. Pleune, M.D., Director, Northern Peninsula Office, Michigan Dept. of Health, Escanaba, Mich.

Resort areas of Michigan need qualified public health nurses to help develop expanding programs of local health departments. Personnel policies written to offer staff members opportunities to enjoy water and woodland sports and outdoor life year round. Positions open immediately for 10 staff nurses at salary range of $2,100–$2,220, 2 senior nurses at $2,400, and 2 supervising nurses at $2,700 to $3,000. Write for personnel form to Director, Northern Peninusula Office, Michigan Dept. of Health, Escanaba, Mich.

Wanted: Public Health Nurse, age 22 to 45, salary $200 per month and maintenance. Must furnish own car. Ideal working and living conditions. Contact Dr. Paul D. Crimm, Boehne Tuberculosis Hospital, Evansville 12, Ind.

Wanted: Physician to act as health officer in large local department of health in State of Washington. Salary range $5,280 to $6,300, entrance varying with education and experience of candidate. For full details write Dr. Arthur L. Ringle, State Director of Health, Seattle, Smith Tower, Wash.

Wanted: Experienced sanitarians with college degree to serve in local health departments. Salary range $2,400 to $2,880 entrance, varying with education and experience of candidate. Opportunities of advancement to Senior Sanitarian with salary range $2,760 to $3,360. For full details write Dr. Arthur L. Ringle, State Director of Health, Smith Tower, Seattle, Wash.

Hawaii Board of Health wants 1 psychiatrist to direct bureau of mental hygiene. Salary $645 to $728.33 plus $45.00 bonus. Certification by the American Board of Psychiatry and Neurology or sufficient training and experience to be eligible for such certification required; 1 Pathologist to direct Bureau of Laboratories. Salary $520 to $620 plus $45 bonus. Must have 3 years' experience in pathology of which 2 years shall include administrative responsibility for work of recognized laboratory engaged in diagnosis and control of human diseases, graduation from medical school of recognized standing and 2 years' specialized training in pathology; 1 Pediatrician to assist in direction of programs of maternal and child health and of crippled children. Salary $520 to $620 plus $45 bonus. Must be certified by American Board of Pediatrics or have sufficient training and experience to be eligible for such certification. Write to Board of Health, Territory of Hawaii, P. O. Box 3378, Honolulu 1, T. H. Use 15¢ Clipper Mail.

Territorial Department of Health, Juneau, Alaska, wants public health staff nurses. Minimum salary $245 Southeastern, $281.75 Interior. Minimum qualifications: year of public health in school of nursing approved by NOPHN and 2 years' experience, one of which has been under qualified supervision, preferably in VNA or rural public health. Vacation 1 month, 14 days sick leave, 38 hour week. Apply directly to Director, Division of Public Health Nursing, Box 1931, Juneau, Alaska.

Wanted: Graduate in chemistry, chemical engineering or sanitary chemistry with experience in sewage treatment plant laboratory or similar field for position as chemist. Some experience or training in bacteriological work also desirable. Starting salary $3,200. Newly organized research project, Eastern U. S. Apply **Box R,** Employment Service, APHA.

Wanted: Physicians for health officer positions in county and district health departments in Oklahoma. Salary range according to public health training and experience $4,800 to $6,600 plus travel. Beginning salary with no previous training or experience $4,200 to $4,800 plus travel. Address Commissioner of Health, Oklahoma State Dept. of Health, Oklahoma City 5, Okla.

Health Directors. Two qualified physicians to direct public health programs of counties coöperating with W. K. Kellogg Foundation in Southwestern Michigan. These counties are part of a field training area of Michigan Department of Health. Maximum salary $7,200 plus travel allowance. Write M. R. Kinde, M.D., Director, Division of Public Health, W. K. Kellogg Foundation, Battle Creek, Mich.

Public Health Engineers. Two public health engineers to direct environmental health programs in counties coöperating with W. K. Kellogg Foundation in Southwestern Michigan. These counties are part of a field training area of Michigan Department of Health. Maximum salary $3,600 plus travel allowance. Write M. R. Kinde, M.D., Director, Division of Public Health, W. K. Kellogg Foundation, Battle Creek, Mich.

Wanted: Physicians trained in school of public health and with public health experience for key positions in Latin-American Republics. For particulars communicate with Personnel Director, Office of Inter-American Affairs, 499 Pennsylvania Ave., N.W., Washington 25, D. C., sending brief outline of qualifications.

Wisconsin Needs District Health Officers. Salary $4,320-$4,920 and travel expenses. Write State Board of Health, Madison 2, Wis., giving training, age and experience.

New York State Department of Health Offers Scholarships

Tuition for two semesters' study in public health nursing at approved university and monthly maintenance of $100 for graduate nurses qualifying. Must be eligible to register in New York State. After preparation there is a two year field obligation to serve as rural public health nurse in upstate New York. Apply to Katherine E. Payne, R.N., New York State Department of Health, Albany 1, N. Y.

New York State Department of Health

New York State Department of Health plans 10 or more appointments of Assistant District Health Officer at beginning salary of $4,560 plus travel, with annual increments to a maximum of $5,700. After one year's service Assistant District Health Officer having the required professional qualifications is eligible for promotion to District Health Officer and to certain specialized central office positions, salary range $5,928 to $7,353, and after experience in the higher position promotion to next salary grade can be made; he can be assigned any time to position of Epidemiologist in Division of Communicable Diseases. Benefits include one month vacation annually, liberal sick leave, and participation in state retirement plan. Examination open to residents and non-residents of New York State to be held about July 1, 1946. Immediate provisional appointments can be made pending results of examination. Duties: Assistant District Health Officer is assigned to branch office serving 2 or more counties. Under general direction of District Health Officer he coördinates local public health activities, conducts epidemiological investigations of outbreaks and individual cases of communicable disease, including venereal disease and tuberculosis, and institutes appropriate control measures, conducts or supervises various clinics, promotes improved local health services and performs other public health work required. Qualifications: Citizenship, graduation from approved medical school, license or eligibility for license in New York State, 4 years' satisfactory full-time experience in responsible public health position within 6 years immediately preceding announced date of examination (excepting period of service in armed forces will not be included in the 6 years); 6 months' satisfactory full-time experience in responsible public health position within 3 years immediately preceding date of examination (service in armed forces not included in the 3 years), and satisfactory completion of postgraduate course in public health approved by New York State Public Health Council of one academic year in residence. Interested qualified applicants should write to State Department of Health, Albany 1, N. Y., for further information and application form.

Fellowships in Dental School

School of Dental and Oral Surgery, Faculty of Medicine, Columbia University, announces establishment of a limited number of fellowships for graduates of dental schools. These fellowships will offer opportunity for study in the following basic science departments of the university: Anatomy, Bacteriology, Biochemistry, Pathology, Pharmacology, Physiology. For further information regarding qualifications and stipend address Dean of Faculty of Medicine, Columbia University, 630 West 168th St., New York, N. Y.

POSITIONS WANTED

Physician, public health and administrative experience, considerable experience as medical examiner, seeks part-time position with city or state health department or industrial concern as preëmployment examiner and health supervisor, New Orleans area. **A-518**

Bacteriologist with M.S. in bacteriology, B.Sc. in chemistry, several years' experience as bacteriologist and chemist in public health, recently Captain, Sanitary Corps, A.U.S., seeks position in city or state public health laboratory as bacteriologist or serologist. **L-490**

Bacteriologist, Ph.D., 8 years on faculty of College of Physicians and Surgeons, Columbia, 2 years Officer-in-Charge Army hospital laboratory, 10 publications. Qualified for research, diagnostic, teaching and administrative positions. **Age 36. L-491**

D.D.S., Veteran, 11 years' practical experience. M.P.H. expected 1946. Wishes administrative position in public health administration. **M-464**

Dentist, 30 years in practice, 13 years in public health work. Several years' executive experience. Now chief of large dental department in southern state hospital. Desires position in southwestern state tuberculosis or mental hospital, or in other public health dental institution. Available after November 30. Write **M-465,** Employment Service, APHA.

Advertisement

Opportunities Available

WANTED—(a) Director of generalized public health program in county having population of 30,000; possibility of merger within year, forming district of 40,000; $6,000 including adequate travel allowance; increase at time of merger; minimum year's training in recognized school of public health or adequate public health experience required; Middle West. (b) Director of Dental Hygiene; division of state department of health; preferably someone who has a master of science degree in public health in addition to his degree in dentistry. (c) Assistant medical director, large company engaged in manufacture of bacteriological products; preferably young physician well trained in pediatrics, public health or bacteriology; should be interested in career in pharmaceutical industry. (d) Young man and, also, young woman physician for student health appointments with co-educational college; town of 10,000; positions carry rank of assistant professor; 10-month year; West. (e) Medical coördinator for state crippled childrens division; experience in pediatrics, public health or orthopedics required; $5,500–$8,000, depending upon qualifications; Middle West. **PH7-1** The Medical Bureau, Burneice Larson, Director, Palmolive Building, Chicago 11.

WANTED—(a) Health educator to join staff of department of preventive medicine and public health, state university; teaching experience desirable but not required. (b) Sanitary engineer to join staff of department of preventive medicine and public health; state university; teaching experience desirable. (c) Director of health education; private health agency conducting year-round program throughout one of the Middle Western states; although organization specializes in tuberculosis work, would not be expected to emphasize tuberculosis. (d) Bacteriologist, preferably with doctorate degree; research appointment with laboratories of state department of health; $3,600; Middle West. (e) Health educator to work in conjunction with public health and medical departments of large industrial company; duties consist of preparation and dissemination of information relating to public health; West. **PH7-2** The Medical Bureau, Burneice Larson, Director, Palmolive Building, Chicago 11.

WANTED—(a) Two supervisors, two senior nurses and several staff nurses for generalized public health program; resort area offering unusual recreational activities including water sports, tennis, golf, skiing; excellent transportation several large cities; salaries $2,700–$3,000, $2,400, $2,100–$2,220 respectively, including travel allowances of $500–$750. (b) Several public health nurses, preferably with knowledge of Spanish or Portuguese; South and Central American; must be young enough to withstand rigors of living and working in Latin America; minimum $3,200. (c) College nurse; duties consist of taking charge of department and directing health education program; co-educational college; residential town located short distance from university medical center; $2,700–$3,000 (for school term); Middle West. (d) Tumor clinic nurse; newly created position under state department of cancer control; experienced public health nurse with ability to plan and organize program required; student in public health nursing working toward master's degree and requiring some type of public health research, would be eligible; salary commensurate with preparation and experience. (e) Public health supervisor; county department of health; Southern California. **PH7-3** The Medical Bureau, Burneice Larson, Director, Palmolive Building, Chicago 11.

Advertisement

Opportunities Wanted

Sanitary engineer; C.E., Eastern university; two years' municipal engineering including supervision of field personnel; 6 years, sanitary engineer with state department of health where he has obtained broad experience in all phases of environmental sanitation; for further information, please write Burneice Larson, Director, The Medical Bureau, Palmolive Building, Chicago 11.

Health educator; Ph.D., master's degree in public health; past 6 years, director of department of health and physical education, eastern college; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Dentist; D.D.S. university medical school; several years' private practice; year of postgraduate training in public health hygiene with special emphasis on public health dentistry for which he received degree of M.S.P.H.; several years, state department of health; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Public health nurse; graduate training consists of 4-month course in pediatrics and 9-month course in public health nursing for which she received certificate; record of successful experience including 3 years as chief of industrial nursing staff, large industrial company; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Bacteriologist and immunologist; Ph.D., school of hygiene and preventive medicine, university medical school; graduate training in epidemiology and zymology; 12 years' teachng experience; 4 years in the army where his work was principally bacteriology and immunology; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Public health specialist expecting early discharge after 4 years with Army; degrees Eastern schools including certificate in public health from Johns Hopkins; 10 years' successful administrative experience in public health; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

NEWS FROM THE FIELD

World Health Organization a Reality

Plans for an international health conference under the auspices of the Economic and Social Council of the United Nations were sketched briefly for readers in the April (p. 426) and May (p. 576) *Journals*.

The first Plenary Session of the International Health Conference was held in New York on June 19. To it were invited delegates of the 51 United Nations and observers from 15 nonmember countries, from the three Allied Control Authorities of Germany, Japan, and Southern Korea, and from 10 international organizations. Most of the delegations included Delegates, Advisers, and Technical Experts.

The Conference was opened by the Chairman of the Economic and Social Council who outlined the steps leading up to the meeting of the Technical Preparatory Committee for the International Health Conference from the time the word "health" was inserted in the San Francisco Charter on the proposal of the delegation of Brazil and the joint declaration by the delegations of Brazil and China was submitted on the calling of an international conference for the purpose of establishing an international health organization.

The Representative of the United States on the Economic and Social Council, the Honorable John G. Winant, presented a message from President Truman, which read in part:

"It is of great significance that the first international conference to meet at the call of the Economic and Social Council should have for its object the improvement of health, for this indicates the intention of the Council to grapple immediately with basic problems whose solution is essential to the welfare and happiness of mankind. . . . Modern transportation . . . makes it necessary to develop strong health services in every country which must be coordinated through international action. . . . The right to adequate medical care and the opportunity to achieve and enjoy good health should be available to all people. For this objective I can assure you the interest and the support of the United States."

The Secretary-General of the United Nations, Mr. Tryvge Lie, welcomed the delegates and the Assistant Secretary-General of the United Nations in charge of the Department of Social Affairs, Professor Henri Laugier, indicated the tasks before the Conference as follows:

"Your Conference has one precise aim and one only. This aim is to establish the constitution, the rules, the structure, the practical functioning and machinery of the World Health Organization of the United Nations. . . . A day will come when you will have to concentrate on technical problems, to set up working programs, with all your scientific knowledge, with all the devoted care which you give to your own medical disciplines. But today I ask you to keep in mind through each step of your work, the fact that your Conference is a constituent Conference and that if you have established a satisfactory constitution for the new organization, your mission will have been fulfilled. You have, as a valuable guide in your labors, the Report of the Preparatory Committee in Paris, and your draft will be submitted to the Assembly. I express the feeling of all who set great hopes in the Organization you are about to establish, when I voice the wish that the framework to be set up may be

neither too vague nor too rigid and may allow in the far or nearer future all developments made necessary by the unpredictable progress of science and the increasing authority and responsibility of the United Nations."

The Report of the Preparatory Committee referred to represents the Committee's views as to the general principles which should govern the constitution of the World Health Organization. It states the aims and objectives of the World Health Organization as:

1. To achieve the highest possible state of physical and mental health for all peoples.
2. To prevent the occurrence and control the spread of disease.
3. To stimulate the development and improvement of health services, both preventive and curative.
4. To provide information, counsel, and assistance in the field of health and medical care.
5. To achieve the highest possible level of education and knowledge pertaining to health.
6. To unite for effective action the scientific and professional groups that contribute to the advancement of health.
7. To contribute to the harmony of human relations.

Dr. Thomas Parran was elected President of the International Health Conference which will be in session in New York for several weeks.

American Delegation to the International Health Conference, June 1946

The persons appointed by President Truman to represent the United States of America at the meetings of the International Health Conference convened to set up the Health Organization of the United Nations were announced on June 12 as follows:

Thomas Parran, M.D., Surgeon General, U. S. Public Health Service, *Chairman*

Martha M. Eliot, M.D., Assistant Chief, U. S. Children's Bureau, *Vice Chairman*

Frank G. Boudreau, M.D., Executive Director, Milbank Memorial Fund, New York

Dr. Edwin B. Fred, President, University of Wisconsin, member National Advisory Health Council

James E. Paullin, M.D., Atlanta, Ga.

Durward V. Sandifer, Chief of the Division of International Organization Affairs, U. S. Department of State

Secretary-General of the Delegation, Otis E. Mulliken, Chief of the Division of International Labor, Social and Health Affairs, U. S. Department of State

Advisers to the Delegation:

Chief Technical Adviser, L. L. Williams, Jr., Chief of the Health Branch, Devision of International Labor, Social and Health Affairs, U. S. Department of State

Advisers:

Ward P. Allen, Regional Problems Branch, Division of International Organization Affairs, U. S. Department of State

Howard B. Calderwood, Office of International Health Relations, U. S. Public Health Service

James A. Doull, M.D., Director, Office of International Health Relations, U. S. Public Health Service

Robert P. Fischelis, Secretary American Pharmaceutical Association

H. Van Zile Hyde, M.D., Assistant Chief Health Branch, Division of International Labor, Social and Health Affairs, U. S. Department of State

Major General George F. Lull, U.S.A. Ret., General Manager, American Medical Association

John Maktos, Division International Organization Affairs, U. S. Department of State

Marcia Maylotte, Division International Organization Affairs, U. S. Department of State

Albin Roseman, Acting Chief, International Activities Branch, U. S. Bureau of the Budget

Michael B. Shimkin, M.D., Assistant Director, Office of International Health Relations, U. S. Public Health Service

Mary Switzer, Assistant to the Federal Security Administrator

Elmira B. Wickenden, Executive Secretary, National Nursing Council

Abel Wolman, Dr.Eng., Professor of Sanitary Engineering, Johns Hopkins University, Chairman of the Executive Board, American Public Health Association

Executive Secretary to the Delegation, Richard S. Wheeler, Assistant Director Division of International Conferences, U. S. Department of State

Special Assistant to the Chairman, Jean Hend-

erson, Chief of the Office of Health Information, U. S. Public Health Service
Special Assistant to the Secretary General, Frances M. Wilson, Division of International Labor, Social and Health Affairs, U. S. Department of State
Administrative Assistant, Dorothy H. King, Division of International Conferences, U. S. Department of State

PRESIDENT'S REORGANIZATION PLANS

On July 16, barring concurrent resolutions of disapproval by both Houses of Congress, the President's reorganization plan for the Federal Security Agency announced on May 16, will go into effect. The plan transfers to the Federal Security Administrator the functions of the Children's Bureau, with the sole exception of those relating to child labor under the Fair Labor Standards Act. It provides for the continuation of the Children's Bureau within the Federal Security Agency, "but is flexible enough to enable the Administrator to gear in the Bureau's programs effectively with other activities of the Agency. The transfer of the Children's Bureau will not only close a serious gap in the work of the Agency but it will strengthen the child care programs by bringing them into closer association with the health, welfare, and educational activities with which they are inextricably bound up."

Included in the plan also is a transfer of the vital statistics functions of the Census Bureau to the Federal Security Agency, to be performed through the Public Health Service or other facilities of the Agency. In this connection it is pointed out that, in every state but one, vital statistics is a function of the state health department and that the work in the states is financed in part by federal aid administered by the Public Health Service. "This transfer will make for a better correlation of vital statistics with morbidity statistics which are already handled by the Public Health Service. In addition, the Federal Securitly Agency depends on vital statistics and records in the operation of its program."

The plan further abolishes the Social Security Board, transferring its functions to the Administrator, who is provided with two new assistant administrators.

In announcing the plan the President also recommended to Congress that legislation be enacted making the Federal Security Agency an Executive department. "The size and scope of the Federal Security Agency and the importance of its functions clearly call for departmental status and a permanent place in the President's Cabinet. In number of personnel and volume of expenditures the Agency exceeds several of the existing departments. Much more important, the fundamental character of its functions—education, health, welfare, social insurance—and their significance for the future of the country demand for it the highest level of administrative leadership and a voice in the central councils of the Executive Branch."

In announcing this reorganization the President said, "The basic purpose of the Federal Security Agency is the conservation and development of the human resources of the Nation. Within that broad objective come the following principal functions: Child care and development, education, health, social insurance, welfare and recreation, apart from the operation of parks in the public domain. These functions constitute a natural family of closely related services. For example, the development of day-care centers for children has involved joint planning and service by specialists of the Children's Bureau, the Office of Education, the Public Health Service, and other agencies. The schools are both a major consumer of public health services and a leading vehicle for health education. The promotion of social security involves a whole battery of activities, especially

social insurance, public assistance, health and child welfare."

NATIONAL SCHOOL LUNCH ACT

The National School Lunch Act (H.R. 3370), was passed in May and supersedes the prevailing arrangement of a temporary year-to-year program. It declares that it is the policy of Congress:

". . . as a measure of national security, to safeguard the health and well-being of the nation's children and to encourage the domestic consumption of nutritious agricultural commodities and other food, by assisting the states, through grants-in-aid and other means, in providing an adequate supply of foods and other facilities for the establishment, maintenance, operation, and the expansion of nonprofit school lunch programs."

Under the Act which makes the school lunch program permanent, federal funds are available to public or non-profit elementary and high schools. The grants-in-aid will be administered by the Department of Agriculture and made to state departments of education for allocation to schools.

In order to share in federal aid, schools must serve lunches that meet the minimum nutritional requirements prescribed by the Secretary of Agriculture, they must be served free or at reduced cost to children who are determined by local school authorities to be unable to pay the full cost, and the program must be operated on a non-profit basis. A further provision prohibits both the Secretary of Agriculture and the State Education Department from imposing personnel, curriculum instruction, or similar requirements in carrying out the Act.

Funds are allocated jointly on the basis of the number of school children and the relative need for assistance as indicated by the per capita income of the state. For the first three years of the program, states must match the federal grants dollar for dollar; by 1955, the state support must be at least three times the federal grant. However, exception is made for states whose per capita income is less than that of the United States. In such instances, the percentage of state aid may be decreased by the percentage which the state per capita income is less than that of the country as a whole.

TEXAS MEDICAL CENTER

Announcement has been made of plans for the development of the Texas Medical Center in Houston. The initial $20,000,000 of the approximate cost of $100,000,000 has been provided by the M. D. Anderson Foundation.

Four colleges will participate in the program of the center: Baylor University, which is constructing a $2,000,000 school of medicine scheduled for completion in December, 1946; the University of Texas, which will operate a cancer research hospital, school of dentistry, postgraduate and graduate school of medicine, a school of public health and training courses for all public health workers, and an institute of geographic medicine; the University of Houston which will administer the central School of Nursing; and Rice Institute which will coöperate with the center in research.

DR. HUGO MUENCH APPOINTED TO HARVARD PROFESSORSHIP

The appointment of Hugo Muench, M.D., Dr.P.H., of the staff of the International Health Division, Rockefeller Foundation, New York City, to be Professor of Biostatistics at the Harvard School of Public Health, Boston, has been announced. Dr. Muench will succeed Professor E. B. Wilson who retired recently.

Dr. Muench received his medical degree from Washington University, St. Louis, in 1918, and his doctorate in public health from Johns Hopkins School of Hygiene and Public Health in 1932. He currently is the Chairman of the

Vital Statistics Section of the American Public Health Association.

WILLIAM P. SHEPARD, M.D., BECOMES PRESIDENT ELECT OF NATIONAL TUBERCULOSIS ASSOCIATION

The National Tuberculosis Association has announced that William P. Shepard, M.D., Third Vice President of the Metropolitan Life Insurance Company with headquarters in San Francisco, Calif., and Chairman of the Committee on Professional Education of the A.P.H.A., has been unanimously chosen as president elect of the N.T.A. at their meeting in Chicago on March 9. Dr. Shepard succeeds Dr. Victor F. Cullen of Maryland who is resigning because of ill health.

THE TAFT-SMITH-BALL HEALTH BILL

Senator Taft of Ohio introduced into the Senate early in May a bill covering a program for hospital, surgical, and medical care for those unable to pay for such care out of their own resources. This has been hailed by the press as an opposition measure to the Wagner-Murray-Dingell bill. Senator Taft's measure provides for the creation of a national health agency under which all health functions of the federal government, including the Public Health Service, would be administered. This agency would be directed by an administrator appointed by the President, for whom the Surgeon General of the U. S. Public Health Service would substitute when necessary.

The bill would appropriate from general funds two hundred million dollars annually for the next five years to be allocated to the individual states to provide hospital, surgical, and medical service for those in need or those able to pay only in part. The plans of the individual states would require approval by the Surgeon General of the Public Health Service, but, on failure to approve, the state agency could appeal to a national Health Council. This council would consist of the Surgeon General ex officio as chairman and eight members appointed by the administrator, five of whom would be persons well known in the health field, and at least three doctors of medicine. The other three would be persons familiar with the needs for medical care.

Another section of the bill would provide dental health service through allocation to the individual states and would also provide for research, including particularly neuropsychiatric research.

The bill makes no provision for the development of local public health service.

PURDUE UNIVERSITY CONSIDERS RAT CONTROL

"Plans for unrelenting war on the rat . . ." was the theme of a short course on pest control problems held under the direction of Dr. J. J. Davis, Head of the Department of Entomology at Purdue University during the period April 29 to May 3. Sanitary engineers from 75 cities in 17 north central states attended and participated in the study.

Coöperating with Purdue University in the short course was the U. S. Fish and Wildlife Service, the U. S. Public Health Service, and the Indiana State Board of Health. The economic and public health importance of rats and insects, general factors of a rat control program and specific methods of rodent control were the chief topics.

Dr. Davis expects to make this an annual course at Purdue.

EYE SCHOLARSHIPS

The Lions Club of New York will provide four scholarships annually for the advanced study of the eye at New York University College of Medicine, it was announced recently as a $2,000 check for this year was presented to the college. Dr. Currier McEwen,

Dean of the college, predicted great benefits not only to the four beneficiaries, but to their patients throughout their careers, men they will train and persons who will profit by their research. The four will be selected by the university's Department of Ophthalmology.

DR. MC GAVRAN HEADS PUBLIC HEALTH DEPARTMENT AT UNIVERSITY OF KANSAS MEDICAL SCHOOL

Edward G. McGavran, M.D., M.P.H., has announced his resignation as Commissioner of Health of the St. Louis County Health Department, Clayton, Mo., to become Professor and head of the Department of Preventive Medicine and Public Health at the University of Kansas School of Medicine, Kansas City, Kans. Dr. McGavran, who is a graduate of the Harvard Medical School and the Harvard School of Public Health, has served as a member of the Executive Board of the A.P.H.A. since 1943.

HARVARD APPOINTS PROFESSOR FAIR DEAN OF ENGINEERING

Harvard University announced on June 6 the appointment of Professor Gordon M. Fair, Abbot and James Lawrence Professor of Engineering, and Gordon McKay Professor of Sanitary Engineering, as Dean of the Graduate School of Engineering at Harvard, effective July 1. Professor Fair, who holds degrees from Harvard and Massachusetts Institute of Technology, has been a member of the Harvard faculty since 1918. He succeeds Dean Harold M. Westergaard who has retired.

WISCONSIN STATE BOARD REORGANIZED

The Wisconsin State Board of Health has been reorganized to include five main sections to facilitate public health administration in the state. The Board is now composed of Sections on Preventable Disease, Sanitary Engineering, Local Health Service, Maternal and Child Health, and General Administration.

Dr. Allan A. Filek, Madison, is Supervisor of the Section on Local Health Services. Dr. Harry M. Guilford, Madison, Director of the Bureau of Communicable Diseases, will direct the Section on Preventable Disease, and Dr. Amy L. Hunter, Madison, will continue to head the Section on Maternal and Child Health. L. M. Warrick is in charge of the Section on Sanitary Engineering. One new division has been created under General Administration. Known as Central Statistical Services, it will have charge of tabulating and making available all statistics for the use of public health personnel in the state. Vivian Holland was appointed Acting Chief Statistician.

RESEARCH ON RHEUMATIC FEVER

With the appointment of Dr. Francis F. Schwentker as Professor of Pediatrics at the Johns Hopkins University School of Medicine, Baltimore, and Pediatrician in Chief of the Johns Hopkins Hospital, effective July 1, an intensive program to study rheumatic fever will begin at the hospital.

Dr. Helen B. Taussig has been conducting clinical research in rheumatic fever at the Harriet Lane Home for Invalid Children, an affiliate of Johns Hopkins. The new program, which will incorporate her work, will be carried out in two directions, the prevention of the underlying streptococcic infection and a study of the mechanism by which a streptococcic infection is concerned in the etiology of rheumatic fever.

ARTHUR G. COLE

Visitors to the office of the Health Department of the District of Columbia after July 2, 1946, are going to miss Arthur G. Cole, Chief Clerk. On that date, Mr. Cole will have served forty

years in the District Health Department. He has seen it grow from an employed group of 52, with an appropriation of $92,000, to 2,100 employees with an appropriation of $5,397,100.

Mr. Cole will devote his well earned leisure to travel.

DR. RUTH PUFFER VISITS CHILE

Ruth R. Puffer, Dr.P.H., Director of the Statistical Service of the Tennessee Department of Public Health, Nashville, has been appointed visiting professor of the School of Public Health of the University of Chile for the term from June to August, 1946. She will also be a consultant on statistical and tuberculosis work for Chile. Her visit is under the sponsorship of the Rockefeller Foundation, which has been instrumental in the establishment of this school of public health and which has assisted in the training of public health specialists for Chile. Dr. Puffer is on leave of absence from her position in the Tennessee Department of Public Health. She serves also as Secretary of the Vital Statistics Section, A.P.H.A.

BIENNIAL CONVENTION OF NURSING ORGANIZATION, SEPTEMBER 23–27

It is expected that 12,000 professional nurses will attend the Biennial Convention in Atlantic City, N. J., September 23–27, of the American Nurses' Association, the National League of Nursing Education, and the National Organization for Public Health Nursing. In this first large convention of the profession since Pearl Harbor the members will take stock of wartime achievements and plan the most effective ways in which nursing can meet the challenge of postwar health problems. The 50th anniversary of the American Nurses' Association, which now has a membership of over 180,000, will be featured during the meeting.

Among the subjects to be discussed are federal legislation affecting nursing, personnel problems including collective bargaining, the relation of practical to professional nursing, and economic security for nurses.

A.W.W.A. INSTALLS OFFICERS AT ST. LOUIS MEETING

The sixty-fifth Annual Conference of the American Water Works Association was held in St. Louis, Mo., on May 6–10, with a registration of 1,517. The previous record was 1,467 at Kansas City in 1940. The three elected officers are as follows:

President—Wendell R. LaDue, Chief Engineer and Superintendent, Bureau of Water and Sewerage, Akron, Ohio.

Vice-President—N. T. Veatch, Consulting Engineer and Partner, Black and Veatch, Kansas City, Mo.

Treasurer—William W. Brush, Editor, *Water Works Engineering*, New York, N. Y.

PERSONALS

Central States

RAY A. JACOBSON, D.D.S.,† of Wasau, Wisc., has been appointed first Director of the Montana Dental Health Division of the State Board of Health. He previously served as Director of the Dental Division of the Oregon State Board of Health.

EDWIN H. JORRIS, M.D.,† of Madison, Wisc., who recently was released from service in the Navy, has been named Assistant State Health Officer for Wisconsin. CORNELIUS A. HARPER, M.D.,* also of Madison, formerly State Health Officer, has been acting as Assistant at the request of the Board.

FRED P. LONG, M.D.,† of North Platte, Neb., who has been in military service, has returned to the State Department of Health as Director of Communicable Disease Control.

HARRY R. MARLATT, M.D.,† Peoria

* Fellow, A.P.H.A.
† Member, A.P.H.A.

Heights, Ill., Assistant City Health Officer, has been named Health Officer of the newly organized full-time Peoria County Health Unit. A seven member board has been set up with EARL E. DOWNING, Elmwood, Ill., County Superintendent of Schools, as President.

B. A. POOLE,* Director, Bureau of Sanitary Engineering, Indiana State Board of Health, has been elected Director of the Indiana Section of the A.W.W.A. for a period of three years.

WALTER STOEFFLER, M.D., of Indianapolis, Ind., has been named Pediatric Consultant in the Division of Maternal and Child Health, Indiana State Board of Health.

EDWARD S. WEISS,† formerly of Lansing, Mich., has been appointed to the U. S. Public Health Service and assigned to the State Health Department of Richmond, Va. He has had recent overseas service with the public health section of the Second Military Government Regiment and other medical units of the Seventh Army.

Eastern States

OSWALD T. AVERY, M.D.,† of the Rockefeller Institute for Medical Research, has been awarded the Kober Foundation Medal of Georgetown University for his investigations connected with pneumonia.

FRANCIS B. CARROLL, M.D., D.M.D., M.P.H.,* has recently been appointed Assistant Director of Medical Services, Branch Office No. 1, Veterans Administration, in Boston, Mass. Dr. Carroll has completed 55 months of service with the Army Medical Corps. While serving as Chief of Preventive Medicine Service, Headquarters First Service Command, he was awarded the Legion of Merit Medal for "exceptionally meritorious service in connection with the use of sulfadiazine as a prophylactic in the prevention of meningococcus meningitis."

LOUIS I. DUBLIN, PH.D.,* New York, N. Y., has been named an Officer of the Order of Public Health of the Republic of France, by decree of the Office of the Ministry of Population. The honor is in recognition and appreciation of a survey of child health and other health problems carried on in France by Dr. Dublin as representative of the American Red Cross during the fall of 1945.

PROFESSOR GORDON M. FAIR * has been appointed Dean of the Graduate School of Engineering at Harvard University, effective July 1. He succeeds DEAN HAROLD M. WESTERGAARD, who retired June 30. Professor Fair has been a member of the Harvard faculty since 1918.

CHARLES E. GILL, M.D., M.P.H.,† has returned to his former position as District Health Officer with the Massachusetts Department of Public Health after 45 months' military service. He has been assigned to the Berkshire District with headquarters in Pittsfield, Mass.

M. W. JENNISON, PH.D.,† of the Department of Biology, Massachusetts Institute of Technology, Cambridge, Mass., has resigned to become Professor of Bacteriology in charge of the Division of Bacteriology, Department of Plant Sciences, Syracuse University, Syracuse, N. Y., effective September 1.

EUGENE E. LAMOUREUX, M.D.,† of Wethersfield, Conn., has been appointed Director of the Bureau of Preventable Diseases of the Connecticut State Department of Health to succeed MILLARD KNOWLTON, M.D.,* of Hartford, who has retired after 23 years' service.

* Fellow, A.P.H.A.
† Member, A.P.H.A.

CHANGES IN HEALTH PERSONNEL IN MASSACHUSETTS:

WILLIAM J. WELCH, M.D., has been appointed Physician-in-Chief of the Mobile Blood Donor Unit of the Division of Biologic Laboratories, Massachusetts Department of Public Health. Dr. Welch, who served for 2 years in the European Theatre of Operations, has charge of the organization and technical operation of the field team which collects the voluntary blood donations.

ROBERT E. OBER, M.D.,† Epidemiologist with the Division of Communicable Disease, Massachusetts Department of Public Health, has returned to duty following 29 months' overseas service with the Mediterranean Allied Air Forces.

ROBERT A. MACCREADY, M.D.,† recently discharged from the Medical Corps of the U. S. Army where he held the rank of Major, has returned to the Massachusetts Department of Public Health as Epidemiologist in the Division of Communicable Disease. He will be in administrative charge of the Department's Laboratory Approval Program.

MARY CARR BAKER,† formerly Supervisor of Public Health Education, Massachusetts Department of Public Health, is now Field Program Supervisor of the Department's new Blood Program. As field representative, Mrs. Baker supervises collaborative activities between the department, the American Red Cross, and community organizations in arranging for local participation in the Blood Donor Service.

PHILIP W. JOHNSTON, PH.D.,† has returned to the Division of Maternal and Child Health as Research Consultant in Field Service in Child Growth and Development, his duties including the preparation and validation of tests of vision and hearing for school children. During the war, Dr. Johnston held the rank of Lieutenant in the U. S. Naval Reserve. He was first attached to the Bureau of Naval Personnel as a psychologist, but later spent 18 months in the Pacific area as Radar Officer on the U.S.S. Boston.

ELIZABETH E. BARRY, R.N., B.N., has been appointed Supervising Instructor in Public Health Nursing (Pediatrics), Bureau of Public Health Nursing, for the new Rheumatic Fever Program which is soon to be established in the Massachusetts Department of Public Health.

JANE Y. HARSHBERGER, R.N., M.A., has recently joined the staff of the Bureau of Public Health Nursing as Supervising Instructor in Public Health Nursing. She is conducting an educational program in maternity nursing for public health and hospital nurses.

MORTON ROBINS, M.S.P.H.,† of Albany, N. Y., has been separated from service and appointed Director of the Statistical Analysis Bureau, Medical Records Division, Veteran's Administration, Washington, D. C. During 1944, he served as Statistical Consultant for the Mediterranean Theatre of Operations and in 1945 as Chief of the Medical Records of the Pacific Theatre of Operations.

DALE SCHOLZ, M.D., M.P.H., who has recently completed the course in public health at the Columbia School of Public Health, New York City, has been appointed Health Officer of Middletown, Conn.

COL. CHARLES D. SHIELDS, who recently returned from 4 years' service overseas, during part of which he

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† Member, A.P.H.A.

held the position of Chief Public Health Officer in Bavaria, has been appointed Commissioner of Health of Buffalo. He will succeed FRANCIS E. FRONCZAK, M.D.,* who is retiring after 36 years of service.

JULIA TAYLOR, M.S., who has been staff nutritionist with the Moton Health Service of the Community Service Society of New York, has resigned and has been appointed nutrition consultant on the staff of the Harlem Tuberculosis and Health Committee of the New York Tuberculosis and Health Association, New York, N. Y.

Southern States

ROBERT J. B. ANDERSON, M.D., formerly of San Antonio, Tex., on loan from the U. S. Public Health Service, has been appointed Chief of the Bureau of Tuberculosis, California State Department of Health, with headquarters in San Francisco.

LUDWIK ANIGSTEIN, M.D., PH.D.,† Associate Professor of Tropical Medicine, Department of Preventive Medicine, University of Texas School of Medicine, has accepted the invitation of the UNRRA to participate in the Medical Teaching Mission to Poland as lecturer on communicable diseases for a period of three months. Lectures and seminars on the recent advances in this branch will be offered to the medical profession at several Polish universities.

ASA BARNES, M.D.,† has been transferred from the National Headquarters of the American National Red Cross, Washington, D. C., to San Francisco as Medical Director in charge of the Pacific Area office.

J. J. BLOOMFIELD,* Senior Sanitary Engineer, Industrial Hygiene Division, U. S. Public Health Service, Washington, D. C., recently left for Puerto Rico to survey the industries and make recommendations for an industrial hygiene program.

EVERETT E. CARRIER, M.D.,† of Knoxville, Tenn., has been appointed Health Officer of Giles County, serving part time in charge of the unit in Lincoln County.

HERMAN L. FELLTON† is now associated with the Orkin Exterminating Company of Atlanta, Ga., as Technical Director. Mr. Fellton recently has been placed on inactive duty after serving for 5 years in the Sanitary Engineering Division of the U. S. Public Health Service with the rank of Major.

CHANGES IN HEALTH PERSONNEL IN GEORGIA:

ARTHUR W. HILL, M.D., of Atlanta, Ga., formerly with the State Department of Public Health in Malaria and Hookworm Service, has accepted the position of Commissioner of Health for the Thomas-Grady Counties Health Unit.

GUY V. RICE, JR., M.D.,† of Albany, Ga., recently returned from military service, has been named Assistant Director of the Division of Maternal and Child Health of the Georgia State Board of Health, succeeding WILLIAM B. HARRISON, M.D.,† who resigned to become Regional Medical Director for both the Northeastern and Northwestern Sections.

HERBERT A. HUDGINS, M.D.,† has been appointed Health Officer for Cleveland County, Shelby, N. C. Dr. Hudgins has been recently released from the Army as a Lt. Colonel in the Reserve Corp. While in the Army, he served as a Venereal Disease Control Officer, in Philippine Civil Affairs, and Military Government in Japan.

EDWARD V. JONES, JR., M.D., of Hamp-

* Fellow, A.P.H.A.
† Member, A.P.H.A.

ton, Va., has recently become Director of Venereal Disease Control for the Richmond Health Department, succeeding CARLETON H. WATERS, M.D., who has been transferred by the U. S. Public Health Service to Norfolk, where he will have charge of the Rapid Treatment Center for Venereal Diseases.

FREDERICK L. KNOWLES, JR., of Baltimore, Md., Senior Biophysicist, National Institute of Health, has been named Editor of the *Journal of the National Malaria Society*, succeeding ROBERT B. WATSON, M.D., formerly with the Tennessee Valley Authority, who has joined the staff of the International Health Division of the Rockefeller Foundation.

ARTHUR RIKLI, M.D., has become the first Director of the newly-created Montana Board of Health Tuberculosis Control Division. He was an Assistant Surgeon with the U. S. Public Health Service in Washington, D. C., before going to Montana.

CHANGES IN HEALTH PERSONNEL IN SOUTH CAROLINA:

CLARENCE L. GUYTON, M.D.,† Columbia, who recently received his discharge from the Army Medical Corps, has resumed his position as Director of the Division of Cancer Control, State Board of Public Health, and has been appointed Director of the Division of Venereal Disease Control, effective February 1.

JOSEPH M. CHISOLM, M.D.,† who has been directing the Venereal Disease Division during the war emergency on assignment from the U. S. Public Health Service, will continue as Assistant Director pending a new assignment.

WILLIAM C. WHITE, M.D., of Washington, D. C., Chairman of the Committee on Medical Research, National Tuberculosis Association since 1921, resigned, effective March 1, ending more than 25 years' service to the organization. Dr. White has been succeeded by HENRY S. K. WILLIS, M.D.,† Superintendent and Medical Director of the William H. Maybury Sanatorium at Northville, Mich., who will act as Interim Director pending the selection of a permanent director.

JOHN M. WHITNEY, M.D.,* has been reappointed Superintendent of the New Orleans City Board of Health, a position he has held since 1944.

SIDNEY J. WILLIAMS, M.D.,† has been named Health Officer of Sumter and Greene Counties with headquarters in Livingston, Ala., succeeding ROBERT D. PRATT, M.D.

Western States

CHANGES IN HEALTH PERSONNEL IN CALIFORNIA:

MIRIAM HUBBELL, M.D.,† of El Centro, Calif., has resigned as Health Officer of Imperial County, effective March 1, to join the Los Angeles County Health Department in Glendale.

HAROLD J. FRANKLIN, M.D., formerly of Trenton, N. J., has been named Acting Health Officer for Imperial County.

LENOR S. GOERKE, M.D.,† formerly of Woodland, recently discharged as Lt. Colonel from the Army Medical Corps, has been appointed Director of the Bureau of Medical Services of the Los Angeles City Health Department.

WINSLOW WHITNEY SMITH, PH.D.,† who has been Professor of Bacteriology at the University of Southern California, has resigned to accept appointment as head of the Department of Bacteriology and Public Health at Utah State Agricultural College, Logan, Utah.

* Fellow, A.P.H.A.
† Member, A.P.H.A.

HUBERT O. SWARTOUT, M.D., DR.P.H.,* who for 3 years has served as Health Officer of the Los Angeles County Department of Health, Los Angeles, Calif., has resigned and plans to live in Santa Maria, Calif.

Foreign

COLONEL E. COTTER of the Indian Medical Service, has resumed his post as public health commissioner with the Government of India, New Delhi, succeeding COL. BOZMAN, who is on leave.

Deaths

EDWARD E. HAMER, M.D.,† State Health Officer for Nevada, died at his home in Carson City on April 13. Dr. Hamer first became a member of the A.P.H.A. in 1927.

FREDERICK LUDWIG HOFFMAN, LL.D., died in San Diego, February 24, aged 80. He served as Consulting Statistician of the Prudential Insurance Company of America from 1894 until 1935, when he retired at the age of 70. Dr. Hoffman wrote surveys of tuberculosis, cancer, public health, nutrition, malaria, suicide, homicide and various problems of longevity. He held memberships in many medical societies and was a charter member of the National Tuberculosis Association, Director of the American Cancer Society, and a member of the National Safety Council. He served as a member of the Governing Council of the A.P.H.A. He has been credited with the founding of the American Cancer Society.

HERMAN GROVER MORGAN, M.D., Secretary of the Indianapolis City Board of Health for 33 years and in 1945 appointed Secretary of the newly created Indianapolis Board of Health and Hospitals and Director of Public Health, died on January 8, aged 60.

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† Member, A.P.H.A.

CONFERENCES AND DATES

American Congress of Physical Medicine—24th Annual Session. Hotel Pennsylvania, New York, N. Y. September 4–7.

American Dietetic Association—28th Annual Meeting. Netherland Plaza, Cincinnati, O. October 14–18.

American Hospital Association—48th Annual Convention and Post-war Conference. Philadelphia, Pa. Week of September 30.

American Medical Association—7th Annual Congress on Industrial Health. Copley-Plaza Hotel, Boston, Mass. September 30–October 3.

American Nurses Association, National Organization for Public Health Nursing, National League of Nursing Education—Biennial Nursing Convention. Atlantic City, N. J. September 23–26.

American Public Health Association—74th Annual Meeting. Headquarters—Public Auditorium, Cleveland, O. November 12–14.

Meetings of related organizations (November 11):

- American School Health Association
- American Social Hygiene Association
- Association of Maternal and Child Health Directors
- Association of Reserve Officers of the U. S. Public Health Service
- Conference of Municipal Public Health Engineers
- Conference of Professors of Preventive Medicine
- Conference of State Sanitary Engineers
- Conference of State and Provincial Public Health Laboratory Directors
- Council of State Directors of Public Health Nursing
- National Committee of Health Council Executives
- Public Health Cancer Association

American Public Works Association—Public Works Congress. Fort Worth, Tex. September 22–25.

Iowa Public Health Association — Annual Meeting. Hotel Ft. Des Moines, Des Moines, Iowa. September 26–27.

Michigan State Medical Society—81st Annual Session. Book-Cadillac Hotel, Detroit, Mich. September 25–27.

National Association of Housing Officials. Cleveland, O. October 10–12.

National Committee for Mental Hygiene—Annual Meeting. Hotel Pennsylvania, New York, N. Y. October 30–31.